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CONTENTS AND SUBJECT INDEX

Surgeon's Responsibility in the Readjustment of the Injured to Work. G. C. Penberthy, M.D., Detroit.1213

Industrial Surgery. Lloyd Noland, M.D., Birmingham, Ala.....1215

Treatment of Fractures by the General Surgeon. E. Dunbar Newell, M.D., Chattanooga, Tenn.....1218

After-Care of Injured. W. L. Estes, Jr., M.D., Bethlehem, Pa.....1222

Papers of Drs. Penberthy, Noland, Newell and Estes discussed by Drs. Hendon, Smith, Campbell, Morrison, Bradburn, Warner, Carothers and Estes.

Nephrostomy and Nephrectomy in Carcinoma of Bladder. M. L. Boyd, M.D., Atlanta, Ga.....1226

Discussed by Drs. Sangree, Bumpus, Livermore and Boyd.

Radiotherapy for Hodgkin's Disease and Lymphosarcoma. A. U. Desjardins, M.D., Rochester, Minn.1231

Discussed by Drs. Musser, Mattick and Desjardins.

Partition of Blood Protein by Scopometry. W. G. Exton, M.D., and A. R. Rose, Ph.D., Newark....1236

Discussed by Drs. Johns and Exton.

Relationship of Thyroid Disease to Chronic Nonspecific Arthritis. W. S. Duncan, M.D., Cleveland...1239

Discussed by Drs. Meyerding, Pemberton and Burbank.

Immunity to Human and Passage Poliomyelitis Virus. Simon Flexner, M.D., New York.....1244

Splenectomy in Felty's Syndrome. E. M. Hanrahan, Jr., M.D., and S. R. Miller, M.D., Baltimore.1247

Lungs of Children with Ascaris. A. E. Keller, M.D.; H. T. Hillstrom, M.D., and R. S. Gass, M.D., Nashville, Tenn.....1249

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Congenital Absence of Spleen and Left Kidney. M. G. Peterman, M.D., Milwaukee.....1252

Speculum for Cataract Extraction. M. M. Cullom, M.D., Nashville.1252

Ectopic Pregnancy. S. G. Clark, M.D., Brooklyn.....1253

Malformation of Ribs. H. S. Hatch, M.D., Morristown, N. J., and C. A. Plume, M.D., Succasunna, N. J.1254

SPECIAL ARTICLE

Electrocardiographic Interpretation. J. B. Carter, M.D., Chicago..1255

COUNCIL ON PHARMACY AND CHEMISTRY 1262

COMMITTEE ON FOODS 1263

EDITORIALS

New Forms of Medical Practice.1264

Age and Nutritive Condition....1265

Gallstones in Lower Animals....1266

CURRENT COMMENT

Convalescent Serum in the Treatment of Poliomyelitis.....1266

MEDICAL ECONOMICS

New Forms of Medical Practice.1267

(Subject Index on next page)

ASSOCIATION NEWS 1269

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SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "Ml," Medicolegal; "ME," Medical Economics.

A. M. A. Board of Trustees meeting....1269
Council on Pharmacy and Chemistry Secretary, Dr. Puckner, dies....1273
Abdomen, gastric lavage after laparotomies....ab-1295
Adler, Alfred, joins Long Island College..1271
Age, nutritive condition vs. learning ability....E-1265
Aging, symptoms....1277
American Academy of Physical Therapy...1273
Amytal, sodium, therapy in psychoses..ab-1292
Anaphylaxis, flaxseed sensitization....ab-1294
Anemia of pregnancy....ab-1300
pernicious, and pregnancy....ab-1300
pernicious, vitamin B_2 factor in....ab-1300
Anesthesia, local, and gangrene of toes..ab-1303
spinal, using nupercaine....ab-1303
Anesthetists, congress of....1273
Aneurysm of membranous portion of atrial septum....ab-1303
Angina, agranulocytosis after neoarsphenamine....ab-1302
Animals, lower, gallstones in....E-1266
Appendicitis, acute, early sign....ab-1295
Arrhythmia, extrasystoles, electrocardiography....*1261
Arsphenamine, spirochetes resistance to..ab-1302
Arthritis, chronic nonspecific, and thyroid disease....*1239
Ponndorf vaccine for....1283
possible traumatic....1282
Ascaris in lungs of children....*1249
Association News....1269
Asthma, bronchial....1278

Beef, raw, added to a wheat-milk diet..ab-1294
Berkowitz, J. G....E-1264; ME-1267
Bladder cancer, nephrostomy and nephrectomy in....*1226
Blood pressure, high, cardiac murmurs in....ab-1303
pressure, high, come from worry?....1285
pressure regulating center....ab-1301
protein partition by scopometry....*1236
Book Notices....1286
Books Received....Adv. p. 34
Brain tumors....ab-1291
Breast, cancer, treatment....ab-1298
Brucella abortus in milk....ab-1299

Calcaneum spur, roentgen irradiation...ab-1302
Cancer mortality, Netherlands....1277
mortality rate, rise reported....1273
study in New Haven....1269
Carbon Tetrachloride poisoning....1276
Cataract extraction, eye speculum for....*1252
uniocular zonular....ab-1298
Cesarean Section, fate of children delivered by....ab-1302
Chiropractors' certificates rejected....1271
Chlorate poisoning....ab-1304
Cod Liver Oil, duty on, and Ottawa conference....1275
Colds and hardening procedures....ab-1291
size of frontal nasal sinuses and....ab-1291
Committee on Foods....1263
Corporations, practice of medicine by....E-1264; ME-1267
Council on Medical Education....1286
Council on Pharmacy and Chemistry....1262
Creosote, effects on eyes....1284
Cysticercosis of muscles....ab-1301

Deaths....1280
Diabetes, insulin allergy....ab-1293
insulin patients on carbohydrate diet..ab-1298
Diathesis, angioneurotic exudative....ab-1301
Digitalis, rectal therapy....ab-1302
Diphtheria, immunity in....1284
Dyspepsia, gastric, Gaultier's gastrotonometer in....ab-1304

Ebaugh, F. G., completes survey....1269
Eclampsia, treatment....ab-1302
Eczema, hypersensitiveness in....ab-1294
Eggs, duck, food poisoning from....1274
Empyema, drainage of....1284
Encephalitis, postvaccination....ab-1296
Ephedrine, dermatitis due to....ab-1294
Erysipelas, acriflavine hydrochloride intravenously in....ab-1302
Erysipeloid: an occupational disease....ab-1298
Erythroblastosis of new-born....ab-1296
Eyes, effects of creosote on....1284
effects of toad venom on....ab-1300
photophobia....1285
speculum for cataract extraction....*1252

Felty's Syndrome, splenectomy in....*1247
Fistula, oromaxillary, operative closure..ab-1299
Food poisoning from duck eggs....1274
Foot of new-born infants....ab-1300
Foreign Letters....1274
Formaldehyde packs for uterine hemorrhage....1282
Fractures, treatment by general surgeon..*1218

Gallbladder calculi in lower animals....E-1266
Gangrene of toes and local anesthesia..ab-1303
Gilbert, Joshua, Atlanta's first physician...1270
Goiter, Exophthalmic, and tetany....ab-1293
iodine in....1284
relation to arthritis....*1239

Hay Fever....ab-1292
allergic conditions of nose....ab-1298
Headache, menstrual....1283
Health, public health service administration, Netherlands....1277
Heart electrocardiography, fundamentals..*1255
murmurs in hypertension....ab-1303
right, catheterization....ab-1301
vascularity of valves....ab-1299
Hernia, femoral, differential diagnosis..ab-1304
Hip fractures, Hendon's treatment....ab-1224
Hoen, S. C., practicing without a license..1271
Honey, duty on, and Ottawa conference..1275
Hospital, county, taxing salary of superintendent....1273
for Joint Disease, appointments open....1272
Hyperthyroidism, iodine in....ab-1293
relation to arthritis....*1239

Industrial disease, erysipeloid as....ab-1298
surgery, problems of administration in.*1215
Infants, New-Born, erythroblastosis of..ab-1296
study of feet of....ab-1300
Infectious Diseases, convalescence from, leukocyte counts in....ab-1291
Injured, after-care....*1222
readjustment of, to work....*1213
Insulin allergy....ab-1293
Intestines inflammation, "in" and "out" of company villages....*1217
perforation in ectopic pregnancy....*1253
tuberculosis, pneumoperitoneum in....1279

Kahn vs. Wassermann tests....1283
Keratitis, interstitial....1285
Kidney, excision, in bladder cancer....*1226
left, congenital absence....*1252
Krasnagorski, Nicholas, lecture by....1272

Larynx tuberculosis....1279
Laurence-Moon-Biedl syndrome....ab-1293
Lead poisoning, calcium chlorate for....ab-1304
Learning ability vs. age and nutritive condition....E-1265
Life, length of, and old age symptoms....1277
Linseed, duty on, and Ottawa conference..1275
sensitization....ab-1294
Liver, etiology of acute hepatitis....ab-1304
Lungs of children with ascaris....*1249
Lymphogranuloma inguinale in children..ab-1302
radiotherapy....*1231
Lymphosarcoma, radiotherapy....*1231

MacNeal, Arthur, memorial to....1270
Malaria in company villages....*1216
therapeutic, histopathology....ab-1292
transmission, Ross's discovery....1274
Malpractice: skill; standard for sectarian healers....Ml-1290
Marriages....1280
Maternal mortality, commission to study, Georgia....1270
Measles, 1921-1930, Germany....1276
Medical Economics....1267
Medical Practice, new forms of....E-1264; ME-1267
Medicolegal....1290
Medulla Oblongata, blood pressure regulating center in....ab-1301
Meetings, Coming Meetings....1290
Menopause, average age for beginning....1284
Menstruation, age of onset vs. age of menopause....1284
fever in tuberculous....1279
headache....1283
Milk, Brucella abortus in....ab-1299
Mosquitoes, Anopheles without malaria....1279
Muscles, cysticercosis....ab-1301

National Medicine, Inc....ME-1267
Neoarsphenamine therapy, agranulocytosis after....ab-1302
Nephritis, acute diffuse glomerular, blood platelets in....ab-1303
Nephrostomy tube, attached to rubber urinal....*1226
Nerve, acoustic, tumors of....ab-1295
Neurodermatitis, hypersensitiveness in..ab-1294
New and Nonofficial Remedies....1262
New York University acquires old Cornell buildings....1271
News....1269
Nose, allergic conditions....ab-1298
Nutrition and age, vs. performance....E-1265
size of frontal sinuses vs. colds....ab-1291

Old Age symptoms and longevity....1277

Peptic Ulcer, diagnosis; management....ab-1297
perforation of duodenal....ab-1295
Photophobia....1285
Physicians, oversupply, Germany....1276
Placenta praevia, treatment....ab-1299
Pleurisy, mediastinal, in children....1279
contralateral exudative, complicating artificial pneumothorax....1279
Pneumoperitoneum for intestinal tuberculosis....1279
Poliomyelitis virus, immunity to....*1244
convalescent serum in treatment....E-1266
increases, Philadelphia....1272
Pollen, hothouse grown, efficacy of....ab-1294
Ponndorf vaccine for arthritis....1283
Pregnancy, anemias....ab-1300
extra-uterine, rupture into intestine...*1253
pernicious anemia and....ab-1300
Prisons, food served in....1278
Prostate obstruction, alternative to prostatectomy....ab-1300
obstruction, transurethral resection of..ab-1292
Psychiatry teaching survey, Dr. Ebaugh completes....1269
Psychoanalytic Institute opened, Chicago..1270
Psychoses, prolonged narcosis as therapy in....ab-1292
Public Health Institute....ME-1267
Puckner, William A., death....1273

Queries and Minor Notes....1282

Radio Program....1269
Radius fracture (Colles'), treatment....*1221
Ribs, congenital malformation....*1254
Ross, Ronald, death....1274

Sailors, British, mortality....1274
Schmorl, C. G., death....1277
Scopometry, blood protein partition by...*1236
Seamen, venereal disease in....1278
Short Wave therapy....1277
Sigerist, Henry E., at Johns Hopkins....1271
Smallpox in company villages....*1216
vaccination, encephalitis after....ab-1296
Society Proceedings....1290
Southern California Medical Association...1269
Speculum, eye, for cataract extraction...*1252
Spine abscess, epidural....ab-1301
Spirochetes, resistance to arsphenamine..ab-1302
Spleen, congenital absence....*1252
Splenectomy, effect in Felty's syndrome..*1247
State Board Examinations....1286
Stomach, Gaultier's gastrotonometer....ab-1304
lavage after laparotomies....ab-1295
Students, Medical, instruction for....1278
Surgeon, treatment of fractures by....*1218
industrial....*1215
rôle in readjusting injured to work...*1213
Syphilis and tuberculosis, contrary therapy....1285
infectiousness (nonsexual)....1285
Syringomyelia, surgical treatment....1278

Tax on salary of county hospital superintendent....1273
on toilet preparations sold on prescriptions....1273
Teeth, permanent, development of....1285
Tetany, thyrotoxicosis and....ab-1293
Thyroid, rachitogenic diets effect on...ab-1295
Thyroiditis, woody, Riedel's....ab-1295
Toad venom, effects on eye....ab-1300
Toes, gangrene and local anesthesia....ab-1303
Tonics and Sedatives....Adv. p. 28
Tuberculosis and syphilis, contrary therapy....1285
Association for the Control of, Rome....1279
immunization, B C G, outside of France..1275
pulmonary, early therapeutic compression in....ab-1293
pulmonary, menstrual fever in....1279
Typhoid in industrial villages....*1215
outbreak, Indiana....1270

United Medical Service, Inc....ME-1267
University City, Paris, enlarged....1276
of Texas, faculty changes....1272
Uterus, excision, vaginal....ab-1297
hemorrhage, formaldehyde packs in....1282

Venereal Disease in seamen....1278
Vitamins, insuring more in farm produce..1275
B_2 (deficiency) in pernicious anemia..ab-1300

Wassermann and Kahn tests, comparative value....1283
Woman's Medical College, faculty changes.1272
Workmen's Compensation Acts: medical fees: witness' fees taxable as costs.Ml-1290

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THE SURGEON'S RESPONSIBILITY IN THE READJUSTMENT OF THE INJURED TO WORK

GROVER C. PENBERTHY, M.D.

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DETROIT

The responsibility of the surgeon who treats the injured is greater today than it has ever been. This is due to the many advances that have been made in the medical and surgical treatment of the injured, as well as to greater competition and refinement in this work; therefore, better results are expected. To attain favorable results, it is incumbent on the surgeon to render efficient service, to carry out a systematic "follow-up" of his patients, and to use every means to return the injured to work, physically fit and in a normal state of mind.

The employer, realizing the importance of efficient medical care, accepts the expense attached thereto as an integral part of his overhead. Until recent years, he was concerned with the prevention and compensation aspects of industrial accidents. These two problems, though necessary and desirable, are not in themselves adequate methods of dealing with the problems of industrial injury hazards. Compensation is certainly helpful, since many injuries limit the earning capacity of the worker and therefore additional assistance is necessary. This assistance is now being provided by a program of rehabilitation, which means physical restoration and vocational training and placement.[1] In many of the large industries medical units have developed with a rehabilitation department functioning with the other departments; with this plan of organization the medical care and the readjustment of the injured to work is simplified. This close cooperation and interest of the employer is vital, and, if lacking, the work of the surgeon who is interested is defeated.

At the present time, many of the employers themselves are passing through a period of readjustment. This adds to the problem of readjusting the injured person who has recovered wholly or in part and is ready to return to a working status. Incidentally, it affords the employer a keener insight and appreciation of the personal problems of readjustment.

The readjustment period begins with the injury and may be considered to continue until the patient can be of service to his employer. With the more seriously injured and emotionally unstable persons this period may continue indefinitely; in this group a more difficult problem of rehabilitation develops.

An injury requiring medical attention is sufficient to cause certain emotional reactions, especially if the injured person is of the unstable type and is supporting a family. The physician may be one engaged by the employer, and it should be his first responsibility to gain the confidence of his patient. This contact is an important factor at the beginning of the problem of adjustment. On admission to the hospital, the patient's reception will have a bearing on his emotional reaction. This reception should be sympathetic, with a spirit of hopefulness and optimism. In dispensing this optimism, the injury should not be treated lightly. Assuming that the mechanical part of the treatment will be efficiently handled, it is also important to learn the details of the accident; yet judgment should be exercised as to the extent of the investigation by the claim adjuster who should have a pleasing personality and be well balanced. He should understand emotionally unstable persons and have an aptitude for gaining the confidence of the patient and his family, as well as be able to comprehend the situation of the family. He plays an important part, and may easily wreck what the surgeon attempts to accomplish. By tactless investigation, a situation is frequently created in which it is impossible to settle a claim satisfactorily.

Sympathetic attention by the hospital personnel need not be carried to the point of exaggerated sentimentality; yet, for psychologic reasons, sentiment should not be submerged. The patient's inactivity throughout the period of hospitalization may lead to his discouragement, and, to prevent such a complication, some type of diversion must be emphasized. The radio ear set affords some amusement for the patient confined in bed; but, when possible, supervised occupational therapy helps to create a new interest, and may even develop competition in the ward. When physical therapy is desirable, it should be instituted as early as possible. Both physical and occupational therapy help to reassure the patient, and not only should it benefit him physically, but it should help him through a period of anxiety. Treatment of this character is ideal, and should lay a healthful foundation for the patient's readjustment. Discharge from the hospital gives new hope to many, even though recovery is incomplete. The surgeon following the condition will know to a large degree the ability of the patient to work. Limited employment may be helpful at first, and, as it is observed that the patient is progressing favorably, he may eventually be assigned to his regular work. In most instances, the foremen cooperate, and it has been my pleasant experience to observe that the executives of the factory are always willing to assist, when possible, in the scheme of readjustment. Those able to return to work benefit by

Read before the Section on Surgery, General and Abdominal, at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

1. Gibbons, James, Deputy Commissioner, Department of Labor and Industry, State of Michigan: Personal communication to the author.

having the surgeon communicate directly or indirectly with the employer, which should be accomplished through the social service or administrative department. Such a contact accomplishes more if it is made with the superintendent or foreman. Merely telling the discharged patient that he is now fit for work is not sufficient, since when he reports for work he may discover that he is unable to carry on; a barrier in his readjustment is thereby developed. He returns to his surgeon, who realizes that the readjustment regimen is approaching failure.

A regularly conducted follow-up clinic [2] should be a link in a chain of events. On discharge from the hospital, patients can be instructed to return at a definite time, or a postal card may be sent requesting them to appear for reexamination; transportation may be furnished. It has not been my observation that this reexamination has in any way developed malingerers. The information gained is valuable and is filed as a part of the hospital record, a copy being sent to the legal department. The data are of inestimable value in assisting in the adjustment of claims for compensation. Furthermore, the sequence of events and changes as noted in the record are helpful if the case is arbitrated. Of especial advantage to the medical department is the information afforded as to what constitutes the average favorable result, and permits a more accurately estimated disability in serious physical injuries. It also discloses the more common sequelae, pointing out measures for preventing them, and affords a correlation of the end-results that follow the different methods of treatment. Prognosis is also assisted by knowledge of the disclosed causes of failure. It is such information that determines the actual degree of final recovery, since we know that in many cases the "recovery" is only partial.

An attorney occasionally advises a patient unwisely that he has grounds for complaint, thereby further adding to his mental burden. A sympathetic physician can, and often does, retard readjustment by too kindly advice. In the follow-up clinic, the surgeon is offered the opportunity and advantage of telling the injured man directly, in a military fashion, that the disability has ceased, and that he is now able to "carry on."

It is fortunate that readjustment problems develop in only a small proportion of the large army of injured workmen, although of late the number of cases referred to the Department of Labor and Industry of Michigan is increasing. This condition undoubtedly is the result of unemployment complications.

The employer, through the medical department, assumes a paternal responsibility to the injured employee that must eventually be shaken off; he, the injured employee, must be weaned. Otherwise the paternalism and compensation offer resistance to the successful termination of the treatment. If this weaning can be accomplished, it will eliminate the possibility of the patient's developing a neurosis on the basis of the injury. It is taken for granted that the only patients in whom neuroses develop are those who have had emotional malajustments before the injury, and who are therefore prone to incorporate the disability in their neurotic activities. This may be illustrated by the great number of "shell shock" disabilities which were incited by the World War, not to mention the disabilities due to the present depression. An early adjustment may be obtained and many protracted disabilities avoided by referring this class of patient for psychotherapy. Many of these patients tolerated their physical incapacities with great effort and distress before the injury, having been forced to do so by social pressure and responsibility. Such persons are unconsciously searching for an opportunity to escape. The accident affords the opportunity, and provides a crutch to lean on by having some one share the troubles.

The treatment necessary in the readjustment of this type of patient necessitates the obtaining in detail of a history of the past social career, early family relationship and adult life. The injury has become an extra load, and by having it "plucked out," the patient establishes a certain degree of relief from pressure and responsibility. The physician must remove the symptoms that justify the protected position, and, in addition, must assist in the removal of other distresses, such as family problems and responsibility; he must change the patient's interpretation of them. This gives relief, so that in returning to work the barrier does not appear as insurmountable. This form of therapy opens a broad field for psychiatrists, who could give more consideration to evolving a technic.[3]

In many traumatic injuries neurotic complications are prone to develop which offer resistance to satisfactory readjustment, but the greatest number seem to fall in the group of patients who have had injuries to the skull or back. The opinion prevails in the lay mind, and also in the minds of many physicians, that fractures of the skull and spine are of unusual seriousness, and that they are attended with marked impairment of function. These ideas were more or less well founded previous to the application of roentgen study, but since the injuries of the head and spine have been examined roentgenologically, it has been determined that many acute fractures of the skull are not associated with important symptoms and have no significant sequelae; however, there may be clinical evidence five years hence; many fractures of the spine are manifested only by limited local reactions. Therefore, when workmen, who are usually in the lower class of mentality, learn that they have either a fracture of the skull or a "broken back," they attach undue importance to their injury, and often remain completely disabled, in spite of the fact that there is no anatomic or physiologic basis for such a degree of disability.

In connection with injuries of the head, it is desirable that complete neurologic and roentgen studies be made as soon as the patient's condition permits, so that an abnormal condition can be detected and corrected early. In the event that it is not possible to examine the patient and he is not seen until late, the study should be supplemented by the more refined methods for the detection of injuries to the cranium or to the intracranial structures. By this, I am referring to the modern method of studying the brain for injuries by the injection of air into the ventricles and into the space between the brain and the membranes—ventriculography and encephalography. By such study questions of injury of the brain can be determined definitely. In the absence of any findings of injury of the brain, the physician is in a much better position to persuade his patient that there is no real basis for his symptoms, and that he will be able to function in a normal manner. These ideas apply to an even greater degree in the case

2. Penberthy, G. C.: The Importance of the Follow-Up Clinic, Proceedings Twenty-First Clinical Congress, American College of Surgeons, Surg., Gynec. & Obst. **54**: 428 (Feb.) 1932.

3. Harryman, W. W.: Personal communication to the author.

of spinal injuries, for the back is much more subject to injury and disease, since it is the first structure of the body to undergo degenerative changes. On account of developmental, postural, pathologic, and other factors, most persons have at some time symptoms referable to the back. In the event of injury, such symptoms, ordinarily disregarded, become of undue importance to the patient. Hence, in cases of injury to the spine, thorough neurologic and roentgen studies should be made, and careful note made of all deviations from the normal, such as disalinement, variations in structure and outline of vertebral bodies, variations in the thickness of the intervertebral cartilages and various degrees and locations of new bone formation. The physician examining the spine, either by the usual clinical methods or by the roentgen method, should be familiar with all of the degenerative changes that might take place in connection with the spine, in order not to confuse them with those that might follow definite spinal injury.[4] An accurate diagnosis should be made early, so that appropriate treatment can be followed; since minimal injuries, if untreated, may progress to important deformities. On the other hand, in the event that serious injury is done the spine, this can be minimized by appropriate treatment, and an excellent functional result may be obtained.

A physician may even be justified in withholding from a patient the knowledge that a fracture has resulted from injury, unless the intelligence of the patient is such that he can differentiate between minor injury to the spine, such as fracture of the lateral or posterior spinous processes and a more serious injury, such as a compression fracture of a vertebral body.

The readjustment and reclassification of the patient who is physically incapacitated by injury can be accomplished through vocational training. It should be the responsibility of the surgeon to guide the disabled patient in this direction, to the end that he may become established in successful employment and be made self-supporting. "Rehabilitation helps handicapped people help themselves." This service has been available for every disabled adult person in Michigan since 1921.[5] The Division of Rehabilitation, Department of Public Instruction, reports that since 1921, 14,500 investigations have been made and of this number of cases, half of which resulted from industrial accidents, 2,978 patients have been rehabilitated to date.

SUMMARY

The surgeon treating the injured has a great responsibility in assisting with the readjustment of this group for work. The close cooperation and interest of the employer are vital. The employer through the medical department assumes a paternal responsibility to the injured employee that must be shaken off as the constructive phase of the treatment nears an end. This is necessary to eliminate the possibility of the development of a neurosis on the injury basis. Any injury may lead to neurotic complications, but the greatest number develop with injuries to the back and spine; therefore, it is imperative that thorough studies be made to minimize the complications that may obstruct readjustment to work. The disabled can be reclassified for work through rehabilitation and vocational training, and it should be the responsibility of the surgeon to guide properly this group to this end.

4. Evans, W. A.: Abnormalities of the Vertebral Body, Am. J. Roentgenol., to be published.
5. Vocational Rehabilitation Bulletin no. 2, Division of Rehabilitation, Dept. Pub. Instruction, Michigan (Feb.) 1931.

PROBLEMS OF ADMINISTRATION IN INDUSTRIAL SURGERY

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As industry has developed, its directing heads have come more and more to realize that the skilled care of the injured employee is only one of a number of medical problems all equally important in the maintenance of a highly skilled and steady working force.

It has been estimated that from 6 to 7 per cent of industrial absenteeism is due to accidents, 3 per cent to occupational disease and the remaining 90 per cent to sickness of nonindustrial origin. The latter class is

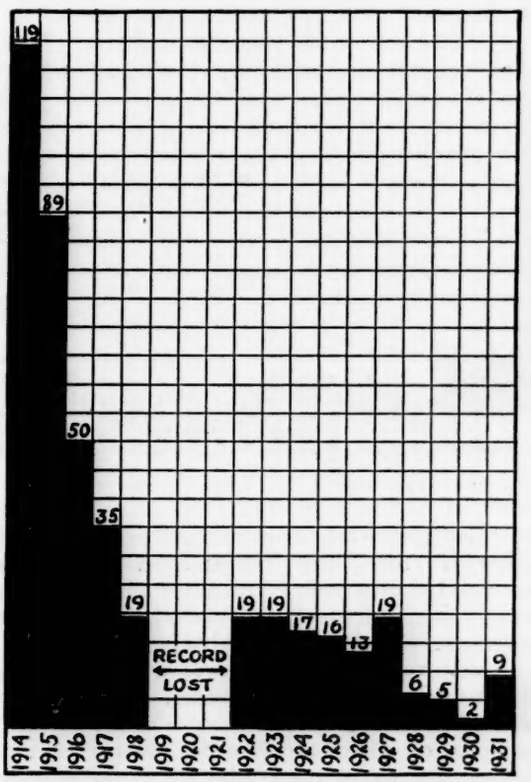

Chart 1.—Incidence of typhoid in Tennessee Coal, Iron and Railroad Company Villages, years 1914 to 1931.

of tremendous importance as a cause of great loss both to the employer and to the employee.

The problem of the industrial surgeon of today is therefore a far greater one than the relatively simple matter of the handling of trauma, for he should be prepared to handle sanitary, medical and social problems as well, with at least the following aims in mind: The employee must be physically fit; working conditions must be made as safe as possible; proper sanitation, including ventilation, illumination and temperature control, as well as facilities for bodily cleanliness, must be provided. Furthermore, it must be realized that contentment and efficiency also depend on living conditions in the home and on the health of the worker's family.

As a practical example of such a problem and its partial solution, I have the honor to present for your

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consideration a brief description of the organization and work of the health department of the Tennessee Coal, Iron and Railroad Company, the function of which is, in broad terms, the maintenance of health and working efficiency of all employees of the company.

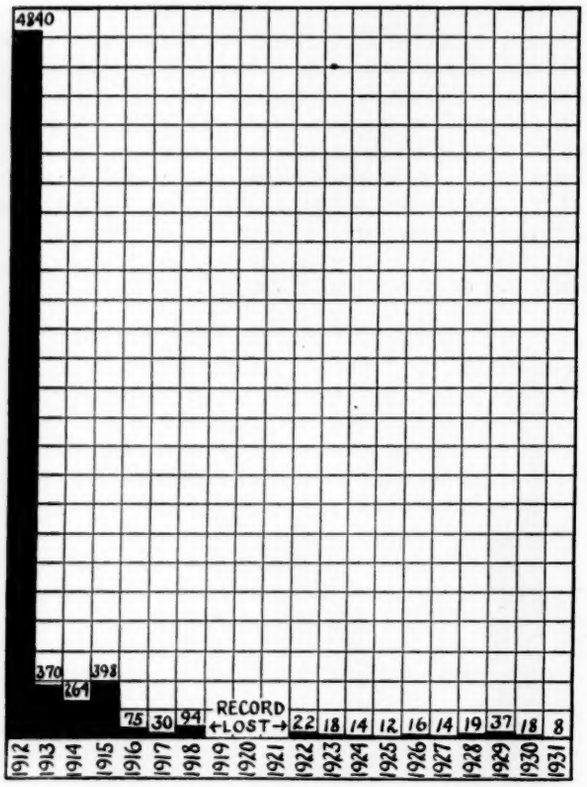

Chart 2.—Incidence of malaria in Company Villages, years 1912 to 1931.

The Tennessee Coal, Iron and Railroad Company, a subsidiary of the United States Steel Corporation, is engaged in the operation of iron ore mines, coal mines, quarries, blast furnaces and various plants for the manufacture of steel. These mines and plants are distributed over a wide territory, within a radius of 15 miles of Birmingham, Alabama. In normal times the company averages on its payroll about 23,000 men, 57 per cent of whom are Negroes, 40 per cent native whites and 3 per cent foreign born. From 40 to 50 per cent of these employees live in villages owned by the company, which are contiguous to mines and plants. The remainder of the force live in the city of Birmingham proper or in villages and towns within short distances of the plants in which they are employed. Twenty separate and distinct villages are owned and entirely maintained by the company, which is responsible for everything ordinarily handled by a municipality. In addition to houses for employees, these villages contain commissaries, bathhouses, schools, churches and clubhouses constructed by the company.

Prior to 1913, the sanitation of these villages was, generally speaking, in the hands of the local plant superintendent. The medical work for the men and their families, as well as the handling of cases of injury, was done under the old "contract" system, the physician being engaged by the superintendent and receiving a certain amount per man, per month, for his work, the collection of this fee being made arbitrarily from the men through the payroll. Under the usual contract the physician was supposed to furnish the necessary medicine and hospital care at his own expense, and to employ the necessary number of assistants to do the work. The natural consequence of this practice was that usually the work was done as cheaply as possible and therefore unsatisfactorily.

The average attendance at work for 1912 was approximately twelve days per month, and the employment turnover was enormous, running above 400 per cent a year. Malaria was rampant, close to 5,000 cases having been listed that year among the employees and their families; typhoid and smallpox epidemics were a yearly occurrence; hookworm disease, the dysenteries and enteritis were almost the rule. There was little hospitalization for either illness or injury and a woful lack of even the most simple equipment for diagnosis and treatment. In consequence there was widespread dissatisfaction over the existing medical system.

Early in 1913 the company organized the department of health, a superintendent and an assistant superintendent were engaged, and the department was organized on a basis similar to that of other operating departments of the company.

The first and most important question facing this department was: What should be done to help build up a steady and efficient working force?

After careful consultation with the state health officer, representing the Board of Censors of the State Medical Association and the State Board of Health, covering the financial as well as the personal elements, a plan of organization and operation was formulated and approved. The department was separated into four divisions, as follows: sanitary, medical, dental and base hospital, the head of each division reporting directly to the chief surgeon and superintendent of the department of health.

The sanitary division, under the direction of the chief sanitary inspector, is responsible for the following: the purity of all water supplies; the care of closets and disposal of fecal matter; the collection and disposal of trash and garbage; the cleaning and draining of streets

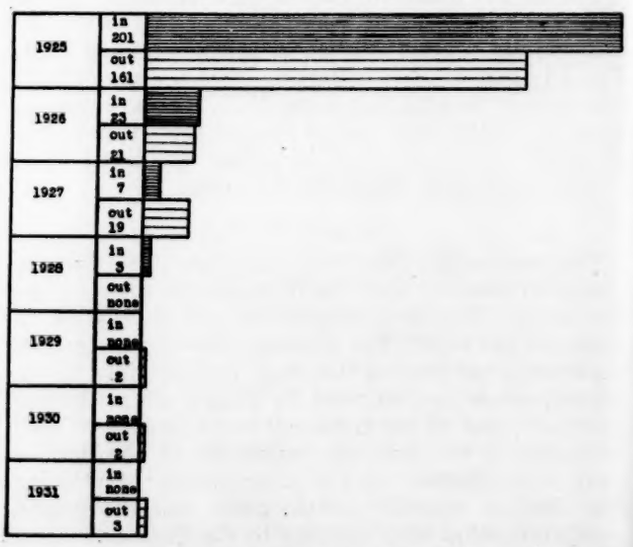

Chart 3.—Incidence of smallpox "in" and "out" of Company Villages.

and alleys, including the cutting of weeds and grass; the supervision of house premises; the inspection of all places where work is done; the elimination of mosquitoes; the inspection of stables and the prompt disposal of stable manure, to prevent flies; the isolation and quarantine of cases of communicable disease; the supervision of milk supplies, and the inspection of all

commissaries to insure proper protection and purity of food supplies.

The twenty villages of the company are divided into four sanitary districts, each under the charge of a sanitary inspector, who has a sufficient force under his immediate direction to carry on all phases of the work.

The medical division is charged with the operation of 11 dispensaries and emergency hospitals at various

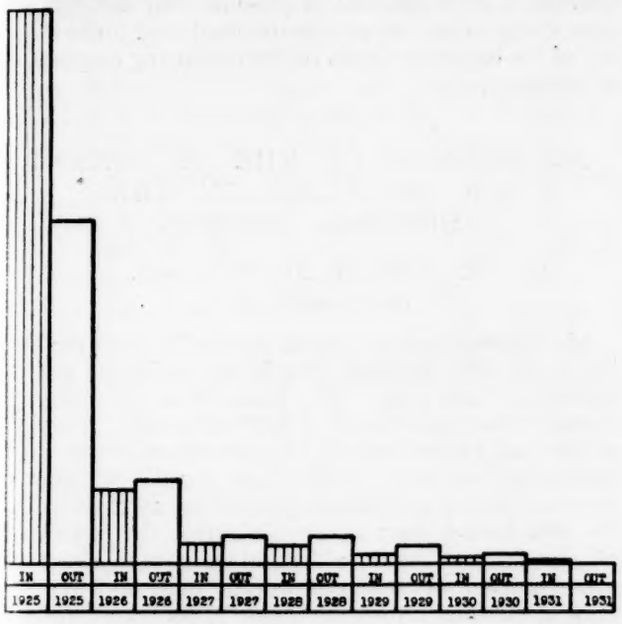

Chart 4.—Case incidence of enteritis (under two years) for seven years "in" and "out" of Company Villages.

works and villages. Each dispensary is under the immediate charge of a district physician, with the necessary number of full-time assistants. All physicians are employed on a straight salary basis, plus compensation for automobile expense. The total force employed on the so-called district work consists of 45 doctors. In addition to the medical work, district physicians act as local health officers, cooperating closely with the sanitary service in the handling of communicable diseases.

The medical division undertakes the handling of emergency accident cases occurring in line of duty, as well as the general medical care of all employees and their dependent families residing within a radius of 2½ miles of each dispensary, treating employees and their families either at the dispensaries or at their homes, as necessary. The physicians of the medical division are also charged with the physical examination of all workmen before employment.

The expense of the medical division is borne partly by the company and partly by the employees, through a system of a voluntary contribution. Under this system any employee whose earnings amount to less than $250 a month, and who lives within a certain radius of the works and mines, may request that he be placed on the "medical list." The payment of $1.25 a month entitles such employees and their dependents to treatment for any ailment, either at the dispensaries or at home, also to professional service at the base hospital.

The dispensaries are well constructed and well equipped for diagnosis and treatment, and the service is extremely popular with employees. For the period of from 1925 to 1931, inclusive, a yearly average of 217,824 visits were made at dispensaries for treatment, and 90,658 calls were made at employees' homes; during the same period the average number of physical examinations a year was in excess of 20,000. The physical examination of workmen before employment is regarded as important. Under the system in vogue every new employee is carefully examined, and in addition every employee who is absent from work for as much as fifteen days for any cause is reexamined before he is allowed to return to work. In this way the vast majority of employees are examined at least once yearly. Men who are a danger to themselves or to their fellow workmen are eliminated. Those with physical defects are discovered, properly treated and assigned to work that is suitable for them. No man is employed who has not been vaccinated against smallpox.

The pediatricians are included in the staff of the medical division. These men hold clinics in each village of the company twice each week, separate clinics being held for white and for Negro children. Primarily these clinics are held for preschool children, but any child of school age may be referred by the district medical force or by the principal of the local school for examination and treatment. In the past seven years the average yearly total attendance at these clinics has been in excess of 20,000.

The pediatric force also has charge of the examination of school children. The company maintains a total of 5 schools for white and 10 schools for Negro children, with an average of approximately 5,000 children in attendance. A careful physical examination of each school child is made each year. Each child is tested with tuberculin, and those reacting positively are reexamined more thoroughly, the examination including fluoroscopy. School children giving a positive reaction to the Schick test are immunized with diphtheria toxoid. All preschool children who attend the pediatric clinics are given toxoid, and are afterward given the Schick test. The medical staff believes that these school children are 100 per cent immunized against diphtheria, smallpox and typhoid.

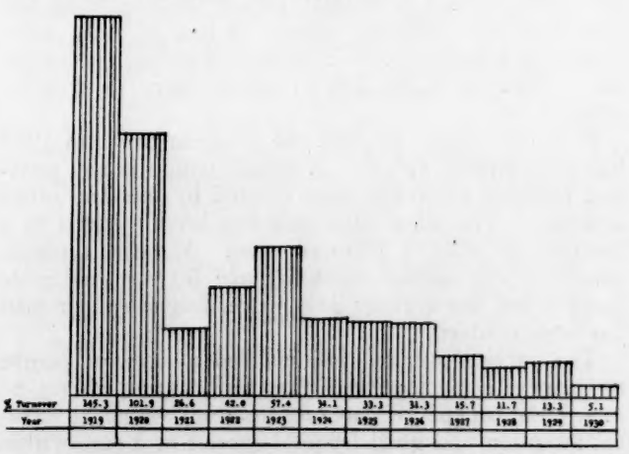

Chart 5.—Labor turn-over in Tennessee Coal, Iron and Railroad Company by years.

Seven dental clinics are maintained, one at the base hospital and 6 at the larger dispensaries. All classes of dental work are undertaken. Employees are treated at a low rate designed to cover actual operating costs. In addition, 2 dentists are employed exclusively on school work. During the school term traveling outfits are set up at each school in rotation, where the dentist remains until every child in the school has been

examined and properly treated. There are 13 dentists in this service, who are employed on a straight salary basis, like the physicians.

The base hospital at Fairfield, Ala., is the clearing house and center of all the work of the health department. This hospital is situated almost in the center of the various works and mines of the company. It is a modern fireproof building, with a capacity for 310 patients of all classes; it is completely equipped in every respect and has a fixed staff of 12 physicians, covering the various specialties. Three residents and from 8 to 10 interns make a total force of from 23 to 25 doctors, all on a full time basis.

All employees earning less than $250 a month and members of their dependent families are eligible for treatment, professional service being provided for through the "medical list" previously referred to, the hospital service being furnished at an extremely low rate. Provision is made for every type of case. The hospital is practically always full, and usually there is a waiting list of elective cases. Accommodations consist mainly of wards, with a small number of semiprivate and private rooms at moderate cost, and of a few private rooms equipped for patients desiring the best that can be obtained. Daily outpatient clinics are maintained to which patients are constantly being referred by the various district physicians and their assistants, these clinics acting as a basis of consultation work with outside men. The outclinic handles an average of 40,000 treatments and consultations each year, which includes the follow-up observation of hospital discharges.

Admissions to the hospital average about 6,500 a year, divided into services as follows: elective surgery, 12 per cent; traumatic and orthopedic surgery, 22 per cent; medical, 27 per cent; obstetric, including the treatment of the new-born, 17 per cent; pediatric, 5 per cent; urologic, 5 per cent; infectious, 2 per cent, and eye, ear, nose and throat, 10 per cent.

Of recent years the figures of the trauma service have shown the same remarkable change noticed in most of the other general hospitals; for instance, during the past year 604 patients injured in line of duty were treated, as compared to 642 patients injured in accidents not in line of duty, 206 of which were injured by automobiles.

It is felt, therefore, that the problem faced in 1913 has been largely solved. A steady, efficient and satisfied working force has been created by this and other agencies. The labor turn-over has been reduced to a fraction of what it formerly was. Malaria, typhoid, smallpox and similar diseases have become negligible factors, and the average days worked monthly per man has been doubled.

The service outlined has enabled a class of people ordinarily neglected and frequently imposed on to secure the benefits of careful sanitation, excellent medical attention and good hospital service at a rate within the reach of all.

Naturally, the expenses of such an organization are large in the total amount, but the cost per capita is small when divided between the company and the employee, which is fair, as both derive benefit from it. The employees are more than satisfied with the service, and feel that they are bearing a fair proportion of the expense, and nearly 100 per cent of those eligible voluntarily avail themselves of its benefits.

That such work as outlined is popular with many physicians is proved by thousands of applications now on file and by the fact that resignations from the service are a rarity. Given proper facilities for careful work, regular hours of duty, a steady, fixed income, an assurance of fair dealing in promotion, readily available consultation, advice and supervision, with the care of the patient as first consideration, a field of endeavor is opened to many able men to whom the financial or competitive side of medicine does not appeal.

In conclusion, I wish to emphasize the fact that such work as I have outlined is possible only through the close cooperation, the advice and the broad understanding of the executive heads of the employing corporation or company.

AN OUTLINE OF THE TREATMENT OF FRACTURES BY THE GENERAL SURGEON

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My observations are drawn principally from the clinical work with fractures done by my associates and me during the past twenty-four years while operating the Newell Clinic and Hospital in Chattanooga. Previous to the past twelve years x-ray pictures were not made throughout our cases of fracture, nor did we keep as accurate history and follow-up record of all cases during the first twelve years as we did during the last twelve of our fracture work, although we treated about the same number of fractures during each period. The clinical material represents about 10,000 cases of fracture in which treatment was given during the past twenty-four years, but my observations for this paper are based on 4,873 fractures treated during the past twelve years, ending Jan. 1, 1932. During this time it has been necessary to do only ninety-five open operations to get adequate apposition of the fractured ends; of this number, twenty-three were performed for fractures of the radius and ulna, fifteen for fractures of the tibia and fibula and twenty-three for fractures of the patella with torn ligaments. In other words, open reductions were done in only 2 per cent of all our fractures. Nonunion of the radius occurred once, of the humerus twice and of the tibia once—all in healthy, robust, white males. The cases in which there was nonunion of the neck of the femur are not included.

From a review of our cases of fracture, systemic conditions have not in the least affected union. We have never used any form of medicinal or physical therapy to induce osteogenesis.

Automobile accidents that cause fractures are so often complicated with grave surgical shock that the treatment of shock must be given first consideration.

The series of 4,873 fractures treated during the past twelve years, ending Jan. 1, 1932, are divided as shown in table 1.

Open operations on simple fractures were done on the bones listed in table 2.

In every case the fracture was diagnosed by an x-ray picture, and in every case an x-ray picture was taken after setting the fracture, if manipulation was necessary to adjust it. We have a record on file with x-ray reports on every one of these fractures. All of them occurred in private patients and all were treated at our clinic and hospital. It may be interesting to note that

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86 per cent of the patients were white, and that these were practically all descendants of the original white settlers of the South—English, Irish and Scotch. Fourteen per cent were colored descendants of the southern slaves. We think that this has an important influence

TABLE 1.—*Classification of Fractures*

Chest	407
Elbow	128
Femur	145
Tibia and fibula	499
Foot	953
Radius	508
Ulna	297
Hand	996
Head	292
Humerus	102
Knee (including 31 fractured patellas)	114
Pelvis	153
Scapula	43
Clavicle	133
Spine	103
	4,873

TABLE 2.—*Sites of Open Operation*

Clavicle	2
Humerus	3
Elbow	7
Femur	6
Radius and ulna	23
Tibia and fibula	15
Patella	23
Maxilla	7
Depressed zygomatic arch	8
Ribs	1
	95

on the treatment, the after-care and the functional results obtained in our cases. A great proportion of our white patients are hearty and intelligent, and not oversensitive physically or mentally, cooperate well, and are anxious to return to work despite the influence of compensation and accident insurance. Of course, in the accident cases that are associated with lawsuits, we always take into consideration the pain and discomfort and disability that frequently are so largely influenced

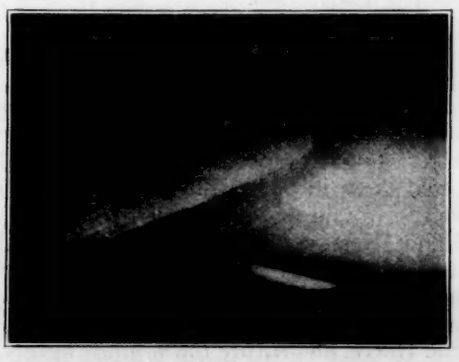

Fig. 1 (case 1).—Compound, comminuted fracture of the middle third of the left femur.

by the pending lawsuit and its final settlement. It is also interesting to note that we have never had a case of nonunion in a colored patient despite the well known fact that from 10 to 25 per cent have inherited or acquired syphilis. If these colored people are treated with kindness and attention, and they have respect for one, they make the most ideal patients to treat for severe fractures; they are not impatient, but are satisfied and contented so long as they are fed well, and will cooperate perfectly if they have confidence in their doctor. These characteristics of our patients are stressed, as I believe the functional results ultimately obtained are so largely dependent on the active, intelligent, interested cooperation of the patient. However, I believe that the one most important factor in the treatment of fractures is an experienced, interested and energetic surgeon. He may lack intelligence to some degree, but he must have experience, interest and energy for success in fracture work. We may allow our assistants to care for our patients after abdominal and goiter operations, but we

Fig. 2 (case 1).—Apposition after traction had been lessened. Counter-pressure pads are seen holding the ends of the bones in apposition.

feel that only one surgeon can care for a bad fracture. A fracture to us is an emergency, more so than an acute appendicitis, because we know that if manipulation of the broken bones is done before the swelling is marked and while the muscles and ligaments are often still flaccid, the anatomic reposition is much more easily done. This brings me to the one most important observation made in our twenty-four years of experience in fracture work. The more nearly and the more quickly one obtains perfect apposition of the broken ends, without open operation, the less pain and discomfort the patient will have—the surgeon too—the better the functional results will be, the less time lost, the less fussing with physical therapy and after-care, and the less the cost of treatement for the fracture. We feel about physical therapy much as we do about open operations for reduction: the less skill, the less energy and the less patience the surgeon has, the more likely he is to do open operation for reduction; likewise, the less accurate the apposition and the more mauling the manipulation inflicted in an effort to get good apposition, the less complete the immobilization; the more discomfort the patient suffers following the manipulation and the immobilization, the greater will be the necessity for physical therapy to get good functional results when the bones have finally united. Physical therapy in the after-care of fractures, when properly applied, is expensive, but probably as ordinarily used is not as effective as active motion done by the patient in the normal use of his limbs in an active, intersted desire to return to work and to get well.

An x-ray picture is taken just as soon as the patient is brought to the hospital. The roentgenologist and the surgeon take the pictures together; the surgeon places the limb in position for the picture and sees that no trauma is done at any time. In all cases the surgeon and the roentgenologist study the pictures together, and the surgeon determines definitely what he will attempt to do before the anesthetic is begun. We never set any

fracture without an anesthetic. We use 2 per cent procaine hydrochloride locally, nitrous oxide and oxygen, and ether, with preference for ether in all major fractures.

Too long immobilization is better, in our opinion, than removing the splints too early and allowing weight-bearing without protection before there is a firm callus.

I do not advocate the closed method of treating all fractures, nor can I become enamored over the open

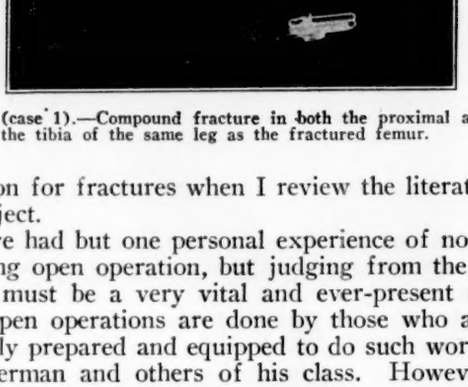

Fig. 3 (case 1).—Compound fracture in both the proximal and distal thirds of the tibia of the same leg as the fractured femur.

operation for fractures when I review the literature on the subject.

I have had but one personal experience of nonunion following open operation, but judging from the literature it must be a very vital and ever-present danger when open operations are done by those who are not especially prepared and equipped to do such work as is Dr. Sherman and others of his class. However, we have noted in all our open operations on the forearm that have been done with a minimum of trauma, and even when no foreign material has been placed in or around the bone and there has not been the slightest infection following the operation, that firm union is delayed from thirty to sixty days in practically all our cases.

Despite our general antagonism toward open operation for reduction and maintenance of fractures, there are some fractures in which we always advise it. In the fractured patella we nearly always do the open operation, unless there is some reason why we should not, because it has been our experience that we get better results. When the fracture is caused by a direct blow on the patella and one is satisfied that the liga-

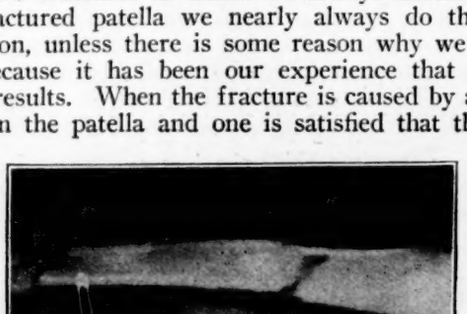

Fig. 4 (case 1).—After the fracture was reduced with skeletal traction applied to the malleoli, with just enough traction to keep the bones in alinement and to prevent too much separation of the fractured femur ends.

ments are not torn, then an open operation may not be necessary; but even in these cases, when the fragments cannot be easily held in accurate apposition by position and splints, we do the open operation. When the fracture is due to muscular violence, we always do the open operation, because in these cases the ligaments have been torn, and one cannot expect a normal knee joint unless the ligaments have been carefully sutured. In fractures of the upper third and of the head of the radius, we are inclined to operate at once without any attempt at closed reduction. In fractures of both bones of the forearm, when the fragments are not easily held in place by position and splints, we believe the open operation is the method of choice. In certain mutilating fractures of the forearm, when the patient is seen with a greatly swollen forearm, when the circulation is poor and further trauma from manipulation for reduction of the fracture will endanger the life of the limb, we do not attempt closed reduction but do the open operation. Also, in oblique fractures of the tibia, when maintenance is difficult, even with traction, we advise the open operation. In fractures around the elbow, when satisfactory reduction and maintenance cannot be obtained by manipulation and position, we believe that the open operation, especially in adults, offers the best functional and cosmetic results. In children it is rarely necessary to do an open operation on fractures around the elbow to get splendid cosmetic and functional results.

I am positive in my opinion that the method of doing an open operation is of the greatest importance. Some surgeons affect the "no touch" method, with the ridiculous repeated resterilization of instruments as the important factor in the success of open operations. I feel that the greatest factor in the success of open operations on bones is the gentle handling of tissues by cleancut dissection; not dissecting the soft parts from the attachment to the periosteum; interfering with the blood supply to the bone as little as possible; never lifting the bones from their bed by rough retraction, if possible; not disturbing the periosteum; not removing attached fragments of bone; apposing the fractured ends without suturing or plating, if possible, and, when not possible, using the least amount of retention sutures or appliances that can hold the ends in apposition. An efficient, interested surgical team is the second most important factor. After I have apposed the fractured ends, I myself hold them in place and allow my first assistant to suture the wound and apply the dressings and cast.

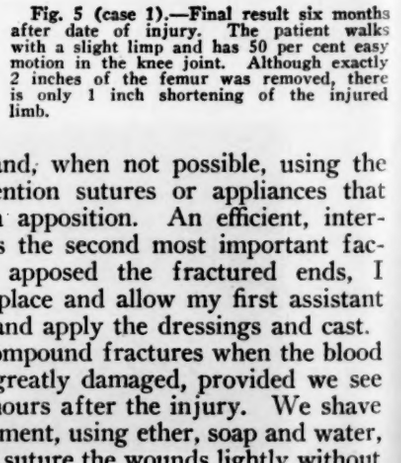

Fig. 5 (case 1).—Final result six months after date of injury. The patient walks with a slight limp and has 50 per cent easy motion in the knee joint. Although exactly 2 inches of the femur was removed, there is only 1 inch shortening of the injured limb.

We do not dread compound fractures when the blood supply has not been greatly damaged, provided we see these patients a few hours after the injury. We shave the parts, do a débridement, using ether, soap and water, and iodine freely, and suture the wounds lightly without drainage or just a rubber wick, for from forty-eight to seventy-two hours, applying retention splints. We do not expect infection or delayed union.

When the compounding is caused from the fractured end of the bone tearing through the soft parts in the skin, a débridement is not done but the exposed bone is carefully cleansed with ether, the fracture is adjusted, and, if there is no hemorrhage, the wound is lightly closed. If there is hemorrhage, or if it is difficult to appose the fractured ends, I do not hesitate to enlarge the opening, adjust the fracture by direct manipulation, control the bleeding, and then close the wound with or without drainage.

When we have seen the badly compounded fracture for the first time, several hours after the injury, or if it is a gravely mutilated fracture with the blood supply decidedly impaired, we do a very careful débridement and treat the wound with surgical solution of chlorinated soda (Dakin's solution) until danger of

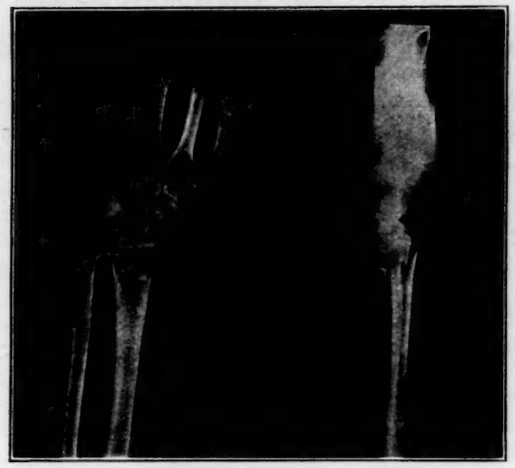

Fig. 6 (case 2).—Colles' fracture of the right forearm.

infection is over, then draw the soft parts together with adhesive straps, or suture the wound, making a linear incision on each side of the wound to allow the flaps to come together easily without tension. We have not had a death from infection following a compound fracture.

Of the 133 fractures of the clavicle, we did only two open reductions. This fracture is difficult at times to hold in good apposition by any form of splint or appliance that we have ever used, and we have tried them all, but the end-results are practically always good for both cosmetic and functional results despite a lack of good apposition. For this reason we rarely do an open reduction. Our treatment is to put the patient to bed and keep him on his back for ten days; a sling of heavy silence cloth is placed under the elbow and over the opposite shoulder to elevate the injured shoulder; another piece of silence cloth 4 inches wide is fastened around the arm of the affected side and the long end of this piece is drawn taut and pinned to a piece of adhesive plaster fastened to the back. The forearm is carried in a sling. This makes a most comfortable dressing. The patients return to the office once a week for readjustments.

Persons with fractures of the neck of the humerus with much trauma to the shoulder joint and to the muscles of the shoulder girdle are put to bed and a Thomas arm splint is applied with traction; the arm is abducted to the degree that is comfortable to the patient. After from ten days to two weeks, the arm is placed on a triangle board splint, with an extension for the forearm, that holds the arm at right angles to the body. The splint is fastened to the body with a plaster cast that extends over both shoulders and over the broken arm. We have found this far more satisfactory than the manufactured splint. In fact, we have only two manufactured splints in our hospital—the Thomas splint and the Cabot posterior leg splint. With the aid of a colored orderly, we manufacture the splints we use when we do not make them of plaster of paris. Fractures of the midhumerus and lower one third of the humerus, without injury to the shoulder girdle, can be treated with splints and fixation to the chest wall. In 102 cases of fractured humerus, there were only 2 open operations done. On the contrary, in 128 supracondylar fractures that extended into the joint, we operated 7 times in order to get good anatomic apposition. In fractures of the elbow the forearm is put up in moderate flexion with voluminous cotton batting dressings; one should guard against cutting off the circulation by too much flexion. As soon as active motion can be begun without pain, it is urged, but no passive motion is inflicted.

There was one case of Volkmann's contracture in this series. A boy 12 years of age had fallen about 10 feet from a tree and landed on the outstretched left hand, fracturing both radius and ulna in the upper third. The roentgenogram showed marked overriding in both fractures. There was much swelling of the entire forearm, and the circulation in his hand was poor. The contraction was due to internal ischemia—a hemorrhage under the aponeurotic layer—and not to tight bandaging. This occurred many years ago, and at that time I was not familiar with the evil effects of hemorrhage under the aponeurosis. Now, if I had a similar injury, I would at once incise the aponeurosis to prevent the degeneration of the muscles due to tension.

My earliest realization that the type of splint and the after-care were of small importance compared to early accurate anatomic apposition was in observing Colles' fractures. I early enunciated the principle in our clinic of "get 100 per cent apposition in Colles' fractures, then it makes little difference the kind of splint provided the fracture is immobilized." I make quick reductions with just two movements, and then quit. Further manipulation will smooth off the ends of the broken bones, and there is more tendency to displacement than when a minimum of manipulation has been done.

Six months of physical therapy in the after-care of Colles' fractures that have been improperly set will not avail as much in good function as five minutes more time used in obtaining 100 per cent apposition. This is more true of this fracture and fractures of the ankle than of other fractures of the body. The time for complete immobilization is important too, not so much for

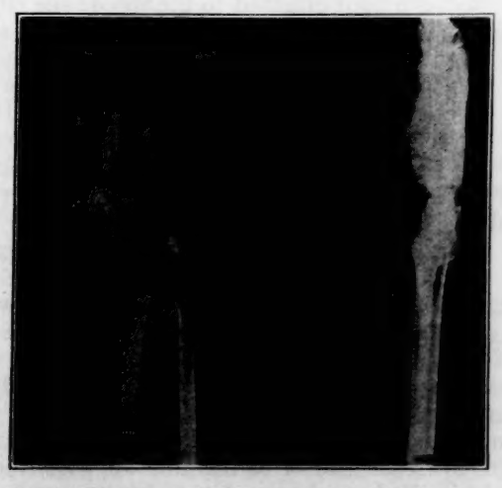

Fig. 7 (case 2).—Colles' fracture of the left forearm.

the young as for the old—it does not seem to make much difference with the young whether the immobilization is for three or for six weeks. Five years ago, I visited Professor Boehler of Vienna and saw him work on many of his cases. He convinced me that old people with Colles' fracture had less discomfort and better functional results when immobilization

was kept up for two months. They are put up in anterior posterior molded plaster splints extending from the knuckles to just below the elbow. The forearm is not carried in a sling, and the patients are encouraged to use the fingers and thumb freely. I have used this method exclusively and with the most satisfactory results since I visited Professor Boehler's clinic.

We treat fractures of the neck of the femur according to the method of Whitman, applying plaster to the body and limbs in an effort to obtain complete immobilization even when the patient is turned or moved. This method is as unsatisfactory to us as it is to others, and we are eagerly awaiting a better method of treating fractures of the neck of the femur. In intratrochanteric fractures of the femur we put the leg in a Thomas splint with traction and suspension from a Balkan frame, and this method has been most satisfactory for this type of fracture.

In fractures of the shaft of the femur, we rely on traction with moleskin adhesive with the limb in a Thomas splint, and swung from a Balkan frame. We get countertraction by elevating the foot of the bed

Fig. 8 (case 2).—After-result.

and by having a cord attached to the top of the ring of the Thomas splint, then run over a pulley placed at the top of the frame on a line with the broken limb; to this a small weight is attached. This holds the ring snugly against the tuberosity of the ischium. If the patient is very muscular, or if there is so much trauma to the skin to make it unsafe to apply adhesive plaster, or if the fracture is in the lower third of the femur with marked displacement, we use skeletal traction. We prefer the caliper with sharp, strong points that can be locked with a set-screw to prevent opening and closing of the points. We drive the points in firmly with a mallet and then fasten the set-screws so that there is no fear of slipping. We have had a Hawley table for years, but never use it for traction in these cases. By the application of traction and countertraction with metal pads attached to the side of the Thomas splint to apply pressure to either side or to the anterior posterior surface of the limb, we have been able to get enough apposition to make it unnecessary to do an open reduction except in 6 of 145 cases of fracture of the femur. We have had persons with fractured femurs with overriding of the fractured ends return to duty in three months, but with this method of treatment the average time for return to duty is six months. Many doctors are adverse to using skeletal traction, but we feel that the more familiar they become with it, the more it will be used, as skeletal traction when properly used is practically harmless and will avoid many an open operation to get proper reduction. Whether the skeletal traction is done with a caliper, a Steinmann pin or Kircher wire will depend on the fancy and ingenuity of the surgeon.

In fractures of the tibia and fibula we use circular plaster casts. These casts extend above the knee, but are immediately cut with a gigli saw. When it is difficult to maintain apposition in good alinement without traction, we immediately apply skeletal traction with the limb suspended in a Thomas splint.

In all the fractures and dislocations involving the ankle joint, we study the x-ray pictures most carefully before we attempt reduction, take new plates and again study them in detail and are not satisfied unless we have good apposition, perfect reduction and the weight-bearing line falling in the center of the tibio-astragalar joint.

Each case will dictate the best method of maintaining reduction. Sometimes it is the Cabot posterior leg splint, sometimes the plaster cast, sometimes it is skeletal traction from the os calcis, and again it is suspension of the foot with the weight of the leg maintaining apposition.

AFTER-CARE OF THE INJURED

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Wisely has it been said that the tyro in medicine treats the disease and not the patient, but that to cure patients one must treat the patient with the disease. So with the injured; too often the interest in the injury, the type of fracture, methods of reduction or maintenance of reduction are the absorbing problem, and the injured man and his reaction to his injury are neglected or forgotten. When satisfactory reduction of a fracture or successful treatment of an infection has been accomplished, there is a tendency to consider the case completed and to pass over lightly the routine for physical therapy and recovery of function or to relegate the care of the final stages to the junior members of the staff. But the responsibility as surgeon in charge not only holds for satisfactory and adequate primary treatment, but continues until the injured person has a maximum return of function—until he is back at work. Not infrequently in severe injuries with prolonged disability, discouragement in the early use of the disabled part, an inferiority complex toward any work or job and a psychologic condition and attitude that are quite abnormal, easily develop in the injured man. He may be worried by, not understand, or have difficulty in cooperating with, physical therapy and unusual or unfamiliar methods to regain function, as attention is focused constantly on the disability that persists and must be overcome. Many of the neuroses of injury are begun by permitting this early discouragement to crop up, resulting in exaggeration of pain and suffering, or by permitting the development of the psychology of a serious or complicated injury.

ESSENTIALS OF AFTER-CARE

The acid test of all treatment is the rapid and complete restoration of function, with the return of the patient to his former job. The proper after-care of

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the injured therefore must include not only (1) early physical therapy, but also (2) active cooperation of the patient in voluntary use of the injured part, and, finally, (3) early return to work—occupational therapy.

1. *Early Physical Therapy.*—It has been emphasized and stressed since the days of Championnière, and revived recently by Murray [1] and others that following fractures early light stroking massage should be given to the traumatized soft parts as soon as possible after reduction, together with slow, light stimulation of the muscles by the faradic current, such as is obtained by the Bristow coil or a myoneurostat. Daily treatments should be maintained until complete active function is obtained. In other types of trauma, particularly injuries of the joints, some form of diathermy is also useful, and occasionally infra-red rays may be indicated. In the later stages, various forms of mechanotherapy may be added, but they do not have the value of the aforementioned early therapy.

2. *Active Cooperation of Patient.*—For fractures, traction suspension treatment should be used whenever possible. Early active motion is encouraged, and daily instruction in and test of muscle use should be inaugurated. The plan of treatment is outlined to the more intelligent patient, in order to obtain his cooperation so far as possible, and the importance of his cooperation is stressed. Gain in function is graphically demonstrated. Those with a fear complex or anxiety psychosis particularly need sympathetic and understanding supervision and direction to obtain satisfactory progress, as when this complex is established it is exceedingly difficult to overcome. Early indications of the return of function and of favorable developments in recovery must be pointed out, and if deformity occurs it is important to emphasize that deformity does not necessarily mean disability. "The medical man must try to discover and constantly to recognize the exact mental attitude of the patient. This includes resentment at the injury, apathy, desire for compensation, fear of pain, keenness to get well, etc." (Hertzlet).[2] His confidence must be gained in the methods and apparatus employed; he must be convinced that rapid recovery of function depends on him, and that physical therapy and massage are but adjuncts to help him help himself. As Murray [1] has so well said, "The psychological side of the fracture problem is beginning to receive attention. More men are being made to realize that the regaining of function is the patient's job, not ours. Our part is that of *helping* the *patient* to regain function."

3. *Early Return to Work.*—If, after function has been somewhat restored in the injured part, a "doubting Thomas" can be put on a job or back on his old job, preferably in the same environment or in the same shop he worked in before, his mind is again concentrated on work to be done; he realizes he is still good for something, and, in the distraction of his thought from his injury—incidental to this work or job—he subconsciously, or unwittingly, uses the disabled member by normal or natural movements incident to work, and obtains quicker recovery of complete function than in simple detached physical therapy. However, whenever necessary, massage, electrotherapy and mechanotherapy can also be continued though the injured man is at work. In other words, a real *occupation* therapy is substituted for abnormal occupational therapy or physical therapy.

1. Murray, C. R.: Internat. S. Digest **12**: 131, 1931.
2. Hertzlet, L. E.: J. Indust. Hyg. **8**: 20, 1926.

If work can be done or if a man is employed and draws pay, no discussion of disability or suggestion that the lesion may end in a degree of disability is raised. Attention is no longer centered on the accident and its consequences, but on the need to speed up treatment and to cooperate until full function and pay has been regained. Murray,[1] too, advocates:

> The increasing use of exceedingly varied and adaptable occupational therapy as the essentially logical after-treatment for the regaining of function, with physio-therapy as an adjuvant before and after for the relief of muscle spasm, pain, and stiffness. . . . Many corporations, often self-insured and, therefore, more capable of realizing the financial saving possible, have come to appreciate the value of *early* return to light occupation as the ideal means of regaining early full function. . . . Complications arising from the question of responsibility for compensation during such light work have interfered with the use of the plan in many industrial lines insured by outside agencies. Adjustment of these difficulties, allowing early return to light work with gradual resumption of normal occupation, will result in tremendous economic saving.

Hertzlet [2] stated that:

> In some injuries the following principles are gradually being accepted:
>
> 1. The reception of an injury does not confer the right to idleness.
> 2. Every injured person is morally entitled to go on earning with whatever function he possesses.
> 3. Continuance at work is better for the injured and for the employer.

To accomplish this result requires close cooperation between the surgeon in charge, the director of physical therapy and the surgeon at the plant. The superintendent or foreman, or both, must also be sold on the idea. Often the aid of his fellow workmen must be enlisted to encourage the injured man and to help him pick up the threads of his new or old job and regain confidence in his ability to carry on. Direct consultation with the foreman may be necessary to decide whether the intended job is suitable and safe.

Each individual case must be decided on its own merits. Certain injuries do not lend themselves to rapid return to work, notably: (1) head trauma, (2) extensive thoracic lesions, (3) severe abdominal injuries and (4) fractures of the foot in which weight-bearing parts are involved.

Injuries of the fingers and fractures in and about the wrist may cause little loss of time from work. Early return to work, therefore, is not a blanket formula, but must be judiciously and reasonably applied.

CONCLUSIONS

Stress has been laid on the important and essential part the patient and his mental attitude play in the recovery from an injury, but there has been no intent to overlook or to minimize the need for prompt and skilful surgical procedure. Rather, the intention has been to indicate what may be the weak links in the chain of treatment. It has been pointed out that the patient himself must be taught to realize that the regaining of function is *his* job, and that it can be accomplished by persistent active use of the injured part, aided by physical therapy.

Proper psychotherapy to avoid and prevent the neuroses of injury must be practiced, and early return to work is the best occupational therapy and does much, and, perhaps, most, to effect the complete and final restoration of function.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. PENBERTHY, NOLAND, NEWELL AND ESTES

DR. GEORGE A. HENDON, Louisville, Ky.: I shall discuss a method of treating fractures of the hip, which I devised and have employed over a period of about four or five years. The plan has the following merits: It entirely eliminates the burden of apparatus designed for the purpose of immobilization; it allows patients the complete and unrestricted freedom of the bed, permitting them to assume any position that is conducive to their comfort and repose; it is capable of achieving results, both anatomic and functional, that most closely approximate the normal; it promotes the exercise of nursing facilities with the minimum of effort to the nurse and the maximum of benefit to the patient; it reduces the period of disability to at least half the time required by the methods most usually in vogue. The essential factor is a device that I call a key, made of beef bone. It is from 3 to 4 inches in length, approximately three-eighths inch square at its greater extremity, and tapers to approximately one-fourth inch at its lesser extremity. These keys can be kept available, immersed in a 4 per cent solution of phenol, and should be boiled only ten minutes before they are used. The operation is simple and can be performed by the average surgeon in fifteen minutes. One who has acquired some experience can do the operation in ten minutes. In my experience and in that of my friends who have used it, there has been no operative mortality. I perform the operation as follows: The correct length of the key is determined by measuring on the roentgenogram the distance from the surface of the shaft of the bone at the base of the greater trochanter to the articular surface of the head of the bone, and the key is made to correspond to that distance. The trochanter is exposed by an incision down to its base, and at the base of the trochanter a countersink is bored one-fourth inch in diameter and not more than one-fourth inch in depth, just sufficient to go through the cortex. The small end of the key is then placed in this countersink and it is driven through the cancellous structure of the neck and into but not through the head of the bone. One can keep the keys on hand in variegated sizes and lengths. The incision is closed with a through-and-through silkworm-catgut suture without drainage, and there never has been in any of my cases necessity for ligating vessels. No dressing except the usual soft gauze one is put on. The patient is then put to bed and allowed to assume any position that is most compatible with his comfort. I have had forty-seven cases. Two of these were in juveniles. In one there had been a nonunion for eight months, and in the other a nonunion for twelve months. Both patients recovered within four weeks. In the senile cases there have been seven hospital deaths. Two were due to pneumonia, two to arthritis that prevailed at the time of the injury, one was due to a cancer of the uterus, another to a pyelonephrosis, and the other to a prostatic uremia. The longest a patient has had to be confined was four weeks. The ages in our senile cases range between 59 and 86 years.

DR. JOSEPH F. SMITH, Wausaw, Wis.: All agree with Dr. Estes that the purpose of treatment should be to return the patient to his job as early as possible, but one is sometimes hampered in doing this by the lack of cooperation between insurance carriers and employers. In states that have workmen's compensation laws, most of the employers are required to carry compensation insurance, and the care of the injured is paid for by the insurance companies. After the patients have been treated and are thought to be ready to return to some form of employment, if they are sent back to the foreman on the job he frequently tells them that he doesn't want a cripple, will not put the man back in his former job, and does not make any effort to provide other employment for him. Under these circumstances a man is thrown out of employment and falls back on the insurance company and on compensation, and then frequently drifts into a state of idleness and incurability. I think that is one of the greatest difficulties one has in trying to care for industrial injuries. Dr. Newell's statement that prolonged physical therapy means there has been less skill or less patience or less energy on the part of the surgeon is entirely correct. Another important point made by Dr. Newell is with regard to the treatment of patients with hemorrhage under the aponeurosis in the forearm sometimes giving the end-result known as Volkmann's contracture. His suggestion that in these cases the aponeurosis be opened and the blood that accumulates under it be evacuated early is excellent, because there is no doubt that in many of these cases the contracture is not caused by the pressure of bandages or splints but by the subaponeurotic hemorrhage. Another thing that is important in his paper is that he employs only two manufactured splints in his hospital. That must be to some of us somewhat of a shock, in view of the fact that we are being constantly importuned by some organizations to see that our hospitals are provided with a large number of standard splints. If Dr. Newell in this large group of cases is able to get along with only two manufactured splints, it seems to me that the necessity of hospitals equipping themselves with a large number of manufactured splints is being greatly overemphasized.

DR. WILLIS C. CAMPBELL, Memphis, Tenn.: Dr. Noland has given a beautiful description of what can be accomplished by a wonderful organization. This, however, does not apply to the country at large, as many cases occur in industrial districts and in agricultural districts which are not applicable to an organization such as he has described. Dr. Penberthy has emphasized the emotional and mental side of this problem, which is the most important part in many instances; undoubtedly the actual injury, though a severe fracture, frequently is much less to the individual than the injury to his mental and emotional side and his future disability, which may continue long after a most serious fracture has healed. I do not agree with Dr. Penberthy that information of the fracture should be withheld from the patient. I do know that many times it is better not to let a patient know that he has a simple fracture that will heal in a short time, for instance, in the spine. But I have seen many persons who have found that they had fractures or some type of definite objective injury of which they knew nothing until it was discovered by some other physician through the aid of some lawyer, perhaps. The result is that the individual loses confidence in the organization or in the physician. I think that the patient or at least the family should be informed of the exact status of the case. Dr. Estes has struck the keynote of the whole proposition in the fact that the injured individual should be placed back at light work as early as possible and that his work should be increased to the degree that his disabilities permit. In many instances this cannot be accomplished because many of the railroads or industrial concerns will not permit a man to return to his former occupation until release of the claim has been given by the individual; consequently he may remain for many months or years afraid to sign up. This, of course, results in a serious mental attitude if the individual becomes more or less hospitalized, has no work, and gets into a mental state which is difficult to overcome. There are many lawyers stirring up these cases. But it should be remembered that every time the legal equation in a case might be easily settled there is also the question of the physician associated with it. The testimony of the physician is required as well. In every city there are men who are always testifying first on one side of the problem and then on another. I should think it was time for the medical profession to determine what might be accomplished in eliminating that element.

DR. WAYLAND MORRISON, Los Angeles: I congratulate Dr. Noland on his excellent organization and his splendid results. This brings up the point of giving this kind of service to the people as a whole. Dr. Penberthy's follow-up clinic is an excellent idea. Too often the mistake is made of telling a man with a compressed fracture of a vertebra that he has a "broken back" and will have a long period of disability. We have found at our clinic that if we attempt to keep the patient's mind from being focused on his injury we are able to get the man out and on his feet much sooner than we otherwise could. In California there is quite a floating population from the Middle West and the East, and among these men are many malingerers. I think in the future it will be necessary to have some sort of national clearing house for cases in which persons who have been injured in other states and have collected for a permanent disability later come to California and attempt to collect for one there. This is especially true of back injuries. Dr. Estes' suggestion on requiring closer cooperation of the employer is often impossible. This is especially true with the railroads since with them one cannot release a man until he has completely

recovered and is ready to return to work. However, in industrial work one finds that the insuring companies are more and more willing to cooperate, oftentimes paying part of the man's salary in order to let him return to light duty. Dr. Newell's paper was instructive. I am glad to know that he is not using all these manufactured splints. I thought there was something wrong with our clinic because we had a whole room full of splints, rarely using any of them. We are also making splints out of boards and of plaster. It is a mistake to buy a lot of expensive, ready-made splints. We are using skeletal traction more and more, and are especially successful with the Kirschner wire. It can be placed in almost any bone and there is a minimum of discomfort to the patient. In using skeletal traction in growing children, one should watch it carefully and not use too much. We had a case in which one of the men put on skeletal traction and the leg became an inch longer than the other one. The mother was told that in the future the other leg would grow enough to catch up with it but we found that it kept growing just an inch longer than the other leg.

DR. MUIR BRADBURN, New Orleans: In a recent review of 308 cases of fracture of the femur, Dr. Mahorner of Tulane University was able to get adequate information as to the end-results in 27.3 per cent. He classified as perfect those cases in which there was no limp, no shortening, no stiffness, no residual of any kind. In fractures of the shaft, 62 per cent of the patients had perfect results, and 38 per cent were partially disabled, meaning that they had some residual but were not totally disabled. These patients were treated at Charity Hospital in New Orleans in four services treating fractures exclusively, showing the value of segregation. In this investigation there was a group of nine cases treated by a modification of Russell's method. Seven of these cases, or 77.8 per cent, received a perfect rating; in one of the remaining two there was slight weakness which was disappearing in the injured limb and which did not prevent the patient from working. In other words, almost 90 per cent of the patients in this group were rehabilitated for laboring work, as compared with 90 per cent total disability in 1915. These figures would have been more convincing had we received a larger return of responses to our questionnaire. In this method the compound pulley arrangement of Russell is employed; shaft fractures (those between the subtrochanteric and the supracondylar fractures) are treated with the limb in marked adduction. Eight pounds for traction is employed. I believe that a supracondylar fracture is best treated by the Böhler method. In using the Russell method in fractures we never employ more than 8 pounds for traction. In one case there was overextension with 8 pounds. Ten pounds practically always overextends. One must always be careful when using the Russell method not to use more than 8 pounds for longitudinal traction. In the correction of posterior displacement, we use 10 pounds with the sling under the distal fragment.

DR. FRANK WARNER, Columbus, Ohio: The reduction of fractures, of course, is a most important thing in treating them, but what is equally important is that after the surgeon reduces a fracture he should not delegate the subsequent work to some assistant who is not accustomed to looking after difficult fractures. I think that the failure to give personal attention to the after-care is one of the main reasons that so many surgeons fall down in securing a good result in the treatment of fractures. Compound fractures occurring anywhere are better treated by skeletal traction than by any form of internal splint, provided, of course, one may be able to dispense with both these types of treatment without the use of the internal splint. Coming to the use of the internal splint, whether of dead bone, beef bone, live bone or a plate, that is highly important, of course, in the selection of the type of treatment. I do not like the use of any of these things when there is a compound fracture; if the fracture is comminuted, I like better skeletal traction at that time when one can secure some apposition. I am not so much opposed to the use of a steel plate provided it is properly used. I have seen many failures result from the fact that some of the best surgeons are absolutely incapable of putting in a steel plate as shown by their subsequent results. I had a number of failures before I saw Sir Arbuthnot Lane operate. After having seen him operate and after having improved my technic, I had no occasion to regret the use of the steel plate. There are two sides to the story with respect to the lawsuits stimulated by the ambulance-chasing lawyers. A man is injured and is off for a long time; his family needs money to live on. An ambulance-chasing lawyer comes along and offers to furnish support for the patient and his family during the time the man is off; I have often thought these lawsuits could be avoided if the company would make the same arrangement with these patients that the lawyers make; namely, furnish them enough money to live on while they are off. If the company is liable for the injury there could be no possible objection to its making some advance; and, by making the advance, an immense number of these lawsuits would be avoided.

DR. ROBERT CAROTHERS, Cincinnati: At the hospital with which I am associated we look on fractures as emergencies and treat them as such. I feel that a fracture is just as much an emergency as an acutely inflamed appendix or any other acute disease. We use local and spinal anesthesia. I don't think that we have used in the last two years a general anesthetic, and I hope we never shall have to use another one. In fractures of the long bones we expect to get reduction by extension and counterextension. We use skeletal traction and do not hesitate to put a pin through a bone. We do not stop until we get a perfect reduction of the fracture, though it may take five or six attempts. That is a decided advantage of our local or spinal anesthesia, which will last for an hour and a half or two hours. After we once get complete reduction, that is the end of the trauma. In addition to that, the soft tissues are readjusted and in position; the lymphatics and vessels are not going around corners; therefore one does not have to fear drainage and one does not have to fear any more swelling because the swelling is over. We maintain our reduction during the process of repair by plaster of paris but directly on the skin, and I hope we shall never have to change our method. I don't believe any one who has used that method twenty times will ever go back to any other. We do not use massage or electricity or anything during the process of repair; we let the patients alone with the cast on. I don't think that we send 2 per cent of our cases to the physical therapy laboratory. They do their own physical therapy. They are up and about just as soon as it is possible. I am speaking of the uncomplicated fractures. Our patients with ankle fractures are up and walking within the first week; our patients with arm, elbow, shoulder and humerus fractures are out of bed—we do not keep them in bed. In fact, the only fracture patients we keep in bed are those with fractures of the shaft of the femur and the majority of those with fractures of the neck of the femur, because they are old, weak persons; but even those patients we get out of bed onto the porch or a truck or wheelchair or something of that kind.

DR. W. L. ESTES, JR., Bethlehem, Pa.: With regard to the lack of cooperation of insurance carriers and many corporations in the early return of the injured to work mentioned by Drs. Smith, Morrison and Campbell, it might be remarked that it is only by agitation of associations such as this and repeated demonstrations by industrial surgeons that complete cooperation can be obtained to affect more universal application of this highly desirable practice for the injured.

Focal Infection.—Edward Rist remarks in his interesting essay Qu'est-ce que la médicine? that "in every country, our confrères have their phantoms and their ghosts. For the Englishman it is uric acid, for the German the exudative diathesis, for the American focal infection." Although we admit that focal infection has at times been almost done to death by its friends, yet it remains a very solid contribution to medicine. As a distinctively American contribution, it is of interest to note that one of the great pioneer American physicians, Benjamin Rush, was one of the first physicians to recognize the relationship between apical infections and arthritis. Benjamin Rush was born near Philadelphia in 1745 on a homestead founded by his grandfather, a Quaker gunsmith, who had come to America with William Penn. . . . Rush Medical College was named in his honor, although Rush himself received this honor posthumously, since he died nearly twenty years before Cook County was incorporated, with Chicago, a tiny village, as its county seat.—Major, R. H.: Classic Descriptions of Disease, Springfield, Ill., Charles C. Thomas, 1932, page 178.

INDICATIONS FOR NEPHROSTOMY AND NEPHRECTOMY IN CARCINOMA OF THE BLADDER

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The object of this paper is to present certain information about nephrostomy which makes its use most desirable in many conditions found in carcinoma of the bladder, in which it is now rarely used, namely: 1. To divert the urine from the bladder as a preparation for cystectomy and other radical operations on the bladder. 2. To improve the function of the kidneys and lessen the injurious effects of kidney infections so as to prepare patients better to undergo radical operations. 3. As a palliative measure in incurable carcinoma of the bladder.

Some of the things which I wish to bring out will be made clearer, I believe, by setting forth some points about one of my patients. He has only one kidney, and has worn a nephrostomy tube in it for eight years with such comfort and satisfaction that he has married, has carried on a successful business and is now teaching school. I reported this case in *International Clinics* [1] last year, so that it is necessary to say here only that the operation was performed when the man was 25, after the left kidney and ureter had been removed on account of infection and calculus formation. Calculi then formed in the right kidney and eventually blocked off the ureter completely. The accompanying illustrations show what I wish to demonstrate here: how the end of the nephrostomy tube (fig. 1) lies in good position in the kidney pelvis, and how the desired position of the tube is maintained by tying a string around it and then tying the string (fig. 2) around the patient's waist. The nephrostomy tube (fig. 3) is long enough to be carried down and fastened directly to an ordinary rubber urinal, making a closed connection with it at a point just above the valve which prevents pressure on the urinal from forcing the urine back out of it into the kidney. Figure 2 shows how healthy looking the skin is about the tube. Only a small dressing is kept about the tube, and is changed about once a day. At night an additional length of tubing is added and the bag is put on the side of the bed. The patient's wife removes the tube every few weeks for it to be cleaned, and reinserts it herself. The patient can also do this easily, he tells me. The renal function as shown by the phenolsulphonphthalein test has remained about the same, 26 per cent in one hour and ten minutes after an intramuscular injection. There have been no symptoms whatever to suggest attacks of acute infection of the kidney, which substantiates the conclusions, first pointed out, I believe, by Albarran, that the kidneys are almost immune to injury from nephrostomy tubes as long as the tubes are kept clean and adequate drainage is maintained.

With the apparatus used for caring for the urinary drainage in this patient all the disadvantages which I have experienced with the nephrostomy tubes and the collection of the urine in other patients have been done away with. In one patient, for example, who had many stones in both kidneys and on whom I performed a nephrostomy, it was never possible to devise or obtain any satisfactory drainage apparatus during the several years that the patient lived after the operation.

To make it possible for the nephrostomy tube to be replaced readily, it should lie in a straight line (fig. 1) from the pelvis of the kidney to the skin of the loin, and the kidney must be pulled as little as possible out of its normal position. To make it possible to maintain the position of the tube by using a string, the opening for the tube in the skin must be at or near the waist line. The tube is easily adjusted to those requirements if a loin incision is used to expose the kidney, if the tube enters the pelvis through the lower major calix and if, as Cabot and Holland suggested (fig. 4), the best angle for the entrance of the catheter into the kidney is determined before the uterine probe, which they employ, is pushed through the kidney substance.

So far as I have been able to determine, this is the most satisfactory method of draining and collecting the urine that has been devised for nephrostomy. There is practically no discharge and no leakage about the tube or from the apparatus. The patient and I worked out the assembly and arrangement of this tube and bag ourselves, but we make no claim for originality; as far as I am concerned, it makes no difference who originated it. All I wish to show is that it is an acceptable method which makes it possible for the urologist to employ nephrostomy far more frequently than it has been employed in the past.

But besides these things there are other difficulties which I have experienced with nephrostomy which have at times made me reluctant to perform the operation—for example, my experience with a double nephrostomy which I performed in a case of carcinoma of the bladder. Although the operation was done easily and rapidly, the patient stood the procedure quite well and eventually the tubes worked satisfactorily, there was for days after the operation a great deal of leakage of urine about the tubes so that the dressings were wet most of the time, the wounds were irritated and the patient was comfortable only when lying on his abdomen. But now these disadvantages of nephrostomy have been almost if not entirely eliminated by a technic which Dr. Hugh Cabot perfected and presented last year and which he and Holland described in the May, 1932, issue of *Surgery, Gynecology and Obstetrics*. The accompanying illustrations (figs. 4 and 5) adequately demonstrate the essential points of the technic.

With the advantages which have been so well proved to be afforded by nephrostomy in renal retention caused by ureteral obstruction, I feel sure that the operation would have long ago been employed extensively in carcinoma of the bladder and of the cervix, as advised by Watson [2] in 1905, had it not been for the difficulties which I have just described. I say this because one of the most important things which urologists have done in the past twenty years has been to demonstrate the necessity for urinary drainage for the relief and prevention of renal damage caused by urinary obstruction. The most evident illustration of this relief is, of course, the benefits which are obtained from drainage of the bladder by catheter and suprapubic cystotomy in cases of prostatic enlargement, benefits which have been so thoroughly discussed that no surgeon neglects to treat his patients with bladder retention by urinary drainage, nor does he perform a prostatectomy on them until they have been improved sufficiently by such treatment to undergo the operation safely.

With the perfection of the technic of nephrostomy which I have just described, it seems to me that there

Read before the Section on Urology at the Eighty-Third Annual session of the American Medical Association, New Orleans, May 13, 1932.

1. Boyd, M. L.: Internat. Clin. **1**: 125, 1931.

2. Watson, F. S.: Ann. Surg. **42**: 805, 1905.

exists abundant opportunity for the employment of the operation in patients with carcinoma of the bladder who have so often in the past been permitted to suffer much discomfort and eventually to die from urinary obstruction a long time before they are incapacitated or killed by the carcinoma. While it is true that these

Fig. 1.—Roentgenogram taken sixteen months after nephrostomy, showing the position of the end of the nephrostomy tube in the kidney, the normal position in which the kidney lies, and how the tube is in a straight line (from Boyd, M. L.: Internat. Clin. **1**: 125, 1931).

patients have not been entirely overlooked in the past, for efforts have been made to relieve them by ureterostomy and by transplantation of the ureters into the bowel, it is also true that these operations were for the most part performed, not because the surgeon had confidence in his ability to give the patient relief, but rather because the desperate condition of the patient demanded that some effort be made to relieve him.

Ureterostomy has several disadvantages, but one essential one is that it offers no satisfactory method of collecting the urine which flows from the ureteral openings. It must be admitted that ingenious methods have been devised for this purpose and patients have lived a long time and seemingly satisfactorily after double ureterostomy. But it is not a procedure which is likely to become extensively used.

Transplantation of the ureters to the bowel has been, in the hands of some surgeons, quite satisfactory in exstrophy of the bladder (Mayo [3] and Walters [4]), and that is one reason why transplantation of the ureters to the bowel has been so persistently attempted in carcinoma of the bladder in spite of the poor results and high operative mortality which have been so frequently reported for those cases. George Smith [5] and others have called attention to how much more unsuitable cases of carcinoma of the bladder are for the use of this procedure. In exstrophy (1) the ureters are in better position for transplantation and (2) the patients coming to operation are younger and their powers of healing and resistance to infection are better than older persons with malignant disease even if they happen to be in poor physical condition (Smith). In carcinoma of the bladder (1) there is apt to be enlargement of the ureters which makes them less suitable for transplantation, (2) the kidneys are frequently injured as a result of ureteral obstruction and infection and (3) the patients are often in poor physical condition at the time of operation.

With Coffey's [6] method of tying a catheter into the ureter at the time of operation, surgeons have come at last to a new era in ureteral transplantation into the bowel because the adoption of this plan has reduced the operative mortality so remarkably. In eight cases of double ureteral transplantation into the bowel in carcinoma of the bladder reported by Coffey in November, 1929, he had no operative deaths. But there still remains the question as to whether ureteral transplantation into the bowel will give sufficient urinary drainage to insure freedom from infection and kidney injury, which may often be caused by even slight ureteral obstruction. Coffey's report of his eight cases does not answer this question. He showed five patients alive at two years, one year, six months, four months and one month; three dead at nine and seven-tenths months, eight months and two months. While these results are remarkable and the patients did well indeed after operation, considering the disability which they suffered from the bladder growths and metastases, there had not been enough time after operation, when he made his report, nor were there adequate data in his article, to show the effect of the ureteral transplantation on the kidneys; for example, there was no record of functional tests of the kidneys, of determinations of the quantity of blood constituents or of fever before operation (which might have indicated the existence of renal infection

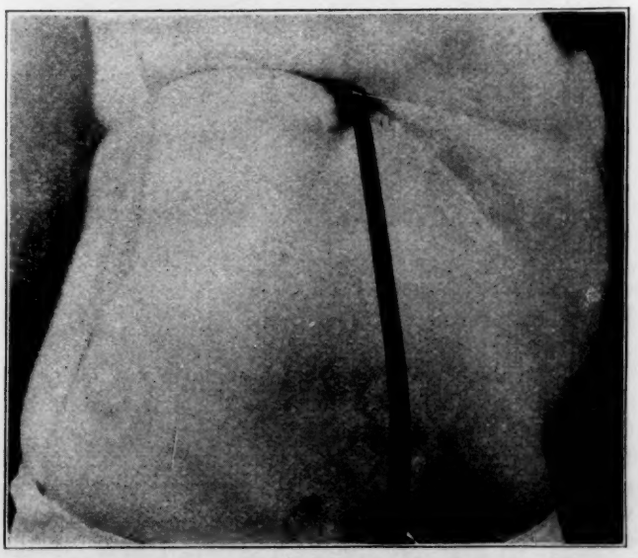

Fig. 2.—Appearance eight years after nephrostomy. It can be seen how the string maintains the tube in the correct position without causing any irritation in the tissue about the tube.

which was allayed as a result of the operation). To demonstrate satisfactorily that the drainage which results from ureteral transplantation in these cases

3. Mayo, C. H., and Hendrix, W. A.: Surg., Gynec. & Obst. **43**: 129, 1926.
4. Walters, W.: Am. J. Surg. **15**: 15, 1932.
5. Smith, G. G.: Tr. Am. A. Genito-Urin. Surgeons **16**: 95, 1923.
6. Coffey, R. C.: Bilateral Submucous Transplantation of Uterus into Large Intestine by Tube Technic, J. A. M. A. **93**: 1529 (Nov. 16) 1929.

is adequate, it is necessary to have information concerning renal function and infection before and after operation in a large series of cases, and also, perhaps, a record of the findings with intravenous urography.

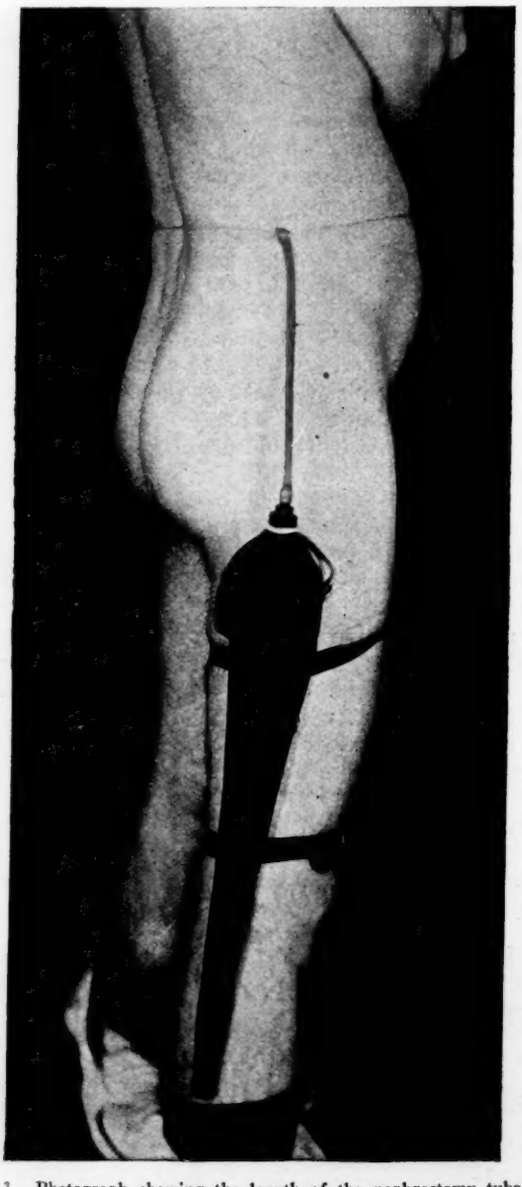

Fig. 3.—Photograph showing the length of the nephrostomy tube, how it is attached to the rubber urinal and how the rubber urinal is attached to the leg; the tape, which goes over the patient's opposite shoulder and supports the urinal, is seen tied about the upper part of the urinal (from Boyd, M. L.: Internat. Clin. **1**: 125, 1931).

An extensive review of the literature on carcinoma of the bladder has left me with the impression that there is a rather general lack of appreciation of the frequency and seriousness of ureteral obstruction. It is well to understand that an obstruction to the ureter which may bring about dilatation of the ureter, pelvis and calices, even leading to extreme atrophy of the kidney, may be productive of no local renal symptoms. And even when infection takes place, the renal pain and fever are rather easy to overlook or disregard whenever the bladder growth is extensive and the suffering from it is severe. In several of my cases in which a kidney proved to be infected the bladder pains, or pains which seemed to be in or about the bladder, were much worse than in the cases with uninfected kidneys (fig. 6).

Two of my patients illustrate well how free from local renal symptoms urinary obstruction may be. One was a man without any infection in his kidneys, who had 5 mg. of blood creatinine for some weeks before he died, with nausea and vomiting for two or three months, but who did not have, at any time, pain or tenderness in or about his kidneys, nor was there any palpable change worth mentioning. But at operation both the ureters and the pelvis were found somewhat enlarged and full of urine, and the right kidney was atrophied to about half its normal size (fig. 7). The other patient gave no history of pain or tenderness or of any abdominal symptoms which would have made one think of a renal disturbance, and yet the ureters were obstructed by an extensive carcinoma which had begun in the upper part of the bladder. When he came to me no urine had been passed into the bladder for three or four days, and although he died ten or twelve days later without passing any urine, he had no symptoms about the kidneys at any time; the abdomen was not rigid, nor was there any palpable tenderness.

Chute [7] called attention to the frequency of ureteral obstruction in carcinoma of the bladder years ago, and there is ample evidence in the literature to support his conclusions that the condition is present more often than it is suspected. In all of the eight cases reported by Coffey the patients had dilated ureters, and similar cases reported by various authors show how common it is to find the dilatation at operation as well as at autopsy.

Pasteau [8] has called attention to the many ways in which the kidneys can be damaged by the obstruction to urinary flow which develops in patients with carcinoma of the bladder, and includes the not uncommon obstructions of the bladder orifice. When one considers the changes produced in the bladder by the new growth, such as thickening from obstruction of the bladder neck and from infection, and also the changes

Fig. 4.—Drawing showing how Dr. Cabot uses the uterine probe to determine the direction in which the nephrostomy tube should lie when it is in place and how the thread is pulled by the probe through the kidney and out of the opening in the pelvis (shown by permission of Dr. Hugh Cabot).

7. Chute, A. L.: Tr. Am. A. Genito-Urin. Surgeons **20**: 295, 1927.
8. Pasteau, O.: Assoc. franç. d'urol., Proc. Verb., Paris **4**: 565-569, 1899.

which take place outside of the bladder as the result of the extension of the growths and of the infections, it is then readily understood how easy it is for ureteral obstruction to be produced. When one considers further that no high pressure is developed in a kidney or ureter, and that the expulsive force normally possessed by the ureter is rather readily impaired, at least temporarily, if the ureter is distended for even a few days, one understands better how permanent changes are started and develop in the ureter not only as the result of the bladder growths but also by treatments, such as are given with radium and diathermy, which produce swelling of the tissues about the ureteral orifice or about the ureter.

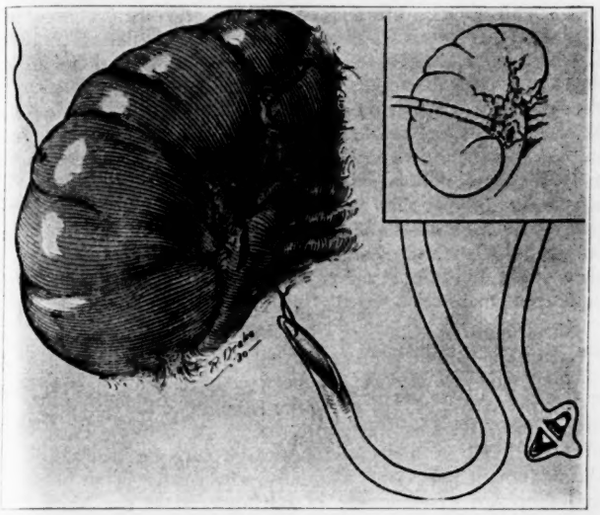

Fig. 5.—The thread is tied to the tapered end of the winged catheter so that the catheter can be pulled through the kidney to its proper place (shown by permission of Dr. Hugh Cabot).

Hinman [9] and others have pointed out the effect on the kidney of a continued distention of the pelvis and calices which results from incomplete obstruction of the ureters. The pressure produced by the distended pelvis and calices interferes with the arterial circulation in the kidney, which results in a destruction of the tubules and an atrophy of the kidney.

I am presenting this information about urinary obstruction with the idea of emphasizing the need which exists for the establishment of urinary drainage in many of these cases. An excellent illustration of how drainage by nephrostomy would be of great help is presented by one of my patients, who was under my care four years before he died. At first he had a papillary carcinoma, about 5 cm. in diameter, on the upper part of the posterior wall of the bladder. Under irradiation the growth disappeared completely, but in less than a year it reappeared, the deeper part of the growth in the bladder wall having been insufficiently treated. For about seven months before he died the patient was unable to work because he felt bad. Pains in the rectum and bladder were annoying but bearable. Nausea developed, and for three months before he died the patient vomited a great deal and scarcely left the house although he dressed and walked about his room every day. In spite of his having a large growth which could be felt by rectum, no evidence of metastases could be found on a careful examination made three weeks before death, except one in the femur. Only a trace of phenolsulphonphthalein appeared in the urine in two hours, and the patient died as the result of renal insufficiency. If I had an opportunity to treat this patient again, I would perform a nephrostomy after the recurrence of the growth as soon as his renal tests showed evidence of developing ureteral obstruction.

In such incurable cases when there is no renal infection, it seems to me just as well to perform a nephrostomy on only the good kidney; the patient has not so long to live under any circumstances and the injured kidney is not apt to give much trouble. But if the injured kidney is infected or if it becomes infected it should be removed at once before the infection increases the bladder pains or causes an injury to the other kidney.

Nephrostomy on only one side makes the care of the urinary drainage apparatus much easier, and I am inclined to believe that it is fully warranted in these cases. And when, or if, it seems advisable to operate on both kidneys at once I would remove a badly injured kidney if the other seemed fairly efficient. A nephrostomy wound is more comfortable for the patient to lie on, and there is far less danger of infection of the nephrectomy wound than of a nephrostomy wound.

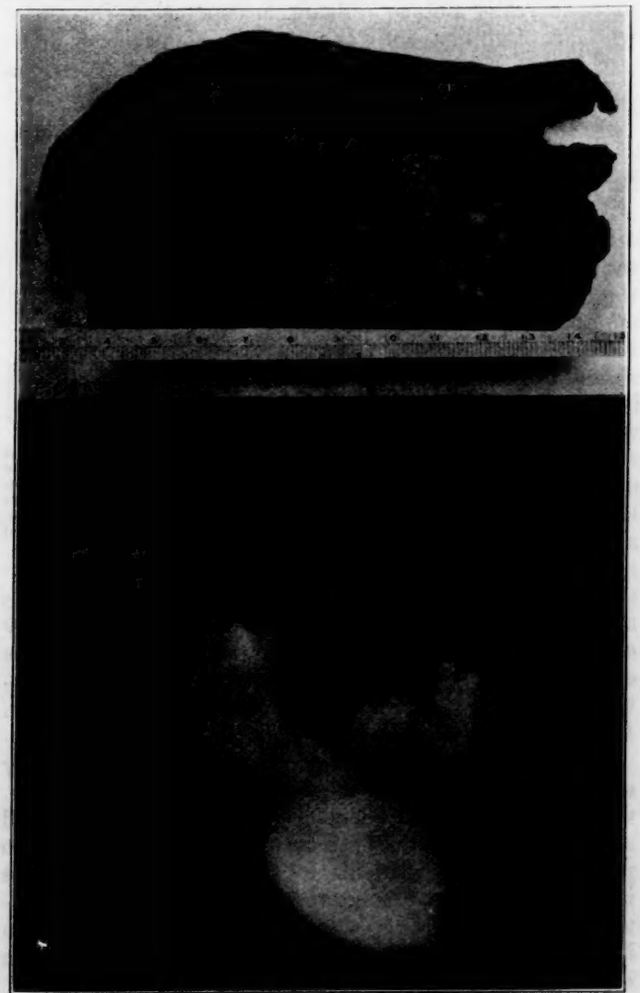

Fig. 6.—A kidney, the function of which has been destroyed by urinary obstruction and infection. It is a little larger than normal, and the pyelogram shows how the renal substance is increased by an increase in the fibrous tissue content of the kidney. The patient had a great deal of fever and pain before this kidney was removed.

The literature on carcinoma of the bladder shows, I believe, a tendency to increase the number of radical operations for carcinoma of the bladder. Cunning-

9. Hinman, Frank: Renal Counterbalance, Arch. Surg. **12**: 1105 (June) 1926.

ham,[10] in a review of the literature, said that in considering the available data on handling malignant tumors of the bladder it appeared that resection gives the best results. A good many authors have expressed approval of cystectomy, and Wade has been expressing his enthusiatic endorsement of cystectomy and reporting some happy results of ureterostomy and cystectomy. The more I see of the uncured cases of carcinoma of the bladder the more I tend to approve some radical measure to insure a cure. And since transplantation of the ureters into the bowel cannot yet be generally accepted, I should like to urge the employment of nephrostomy as a preliminary to cystectomy. Watson, of course, deserves great credit for calling this to the attention of the profession in 1905, and I must confess that I cannot understand why it was not long ago tried out more extensively; there are few cases reported in which it has been used.

The only patient on whom I performed a double nephrostomy and a cystectomy died after the cystectomy. From this experience (which was forced on me by the patient's condition) I learned, first, that cystectomy is really not so difficult an operation for those who are familiar with the technic of perineal prostatectomy; I learned also that infection is a serious complication in such a wound and probably has helped to cause a good many of the operative deaths which have occurred.

Fig. 7.—Atrophy of the kidney as the result of continuous, incomplete urinary obstruction without infection. The function of the kidney has been completely, or almost completely, destroyed. The patient had no local symptoms or renal disturbance.

SUMMARY

There have been in the past two essential things lacking to make nephrostomy as popular an operation as it should be, namely, satisfactory tube and urinary container arrangements and an operative technic which avoided hemorrhage and urinary leakage about the tube.

An efficient urinary drainage method and apparatus are illustrated by a patient who had a nephrostomy eight years ago, is in good health, has married and has carried on the business of life satisfactorily. An operative technic is pointed out which was reported by Dr. Hugh Cabot last year.

Attention is called to the importance and frequency of urinary obstruction in carcinoma of the bladder, which can in suitable instances be satisfactorily treated and prevented by nephrostomy. It should be used to prepare patients, particularly for cystectomy, when it is a more rational procedure than ureteral transplantation to the bowel, at least until ureteral transplantation by the Coffey technic is proved to supply adequate drainage as long as it is needed.

The literature on carcinoma of the bladder would seem to indicate that urologists do not generally appreciate the frequency with which urinary obstruction occurs with bladder growth, nor are they often enough taking advantage of the opportunity that is offered by nephrostomy to cure or relieve the suffering of patients with carcinoma of the bladder.

563 Capitol Avenue S.W.

10. Cunningham, John: J. Urol. **25**: 559 (June) 1931.

ABSTRACT OF DISCUSSION

DR. HENRY SANGREE, Philadelphia: Dr. Boyd has pointed out a new field in these cases by doing a nephrostomy, and he has probably prolonged the lives of his patients. He mentioned one patient who had lived four years. That to me is a very long time for carcinoma. We have a working rule which we use for students. If the growth is down in the trigon, as it usually is, we use roentgen therapy. Dr. Pancoast uses small doses, often repeated. Dr. Wetherax uses large doses. If the growth is recurrent, we use palliative treatment. I reported at one time a case in which a papilloma later developed into carcinoma. We investigated periodically with the cystoscope to see what the true condition was. At the Memorial Hospital in New York they have been using a needle in the open endoscope to secure material. I have used such a needle to see whether I could not suck off some of the cells, which they say should be sent with the specimen for examination. This was done and they sent back word that the growth was a papilloma. In one case in which Dr. Thomas operated, the patient lived fourteen years, but that was a papilloma and not carcinomatous.

DR. HERMON C. BUMPUS, JR., Rochester, Minn.: The erroneous idea that tumors of the bladder change their degree of malignancy with age has been coupled with a similar one that different parts of a tumor exhibit different degrees of malignancy. If this were true, the doing of biopsies would be of little avail as one could never be sure he had not missed the malignant portion of a tumor. Dr. Frater in an exhaustive and thorough investigation of the material at the Mayo Clinic showed that all portions of a tumor are of the same degree of malignancy and that specimens taken after the lapse of extended periods of time had the same degree of malignancy, although the tumor might be larger.

DR. GEORGE R. LIVERMORE, Memphis, Tenn.: I concur with Dr. Boyd that this operation often gives great relief and that the patients get along very well with some device for collecting the urine. Five years ago I saw a patient who had complete anuria for three days and was in a serious condition, with a high blood nonprotein nitrogen and creatinine content. All measures were used to bring about diuresis without results, and the patient was gradually growing worse. After twelve hours a nephrostomy was done, a tube was put in, and urine drained from the tube before the patient left the operating room. The patient recovered and has gone for five years with all the urine draining from a nephrostomy. The wound was made through the kidney cortex, the finger passed down into the kidney pelvis and the tube anchored in place; two small pieces of adhesive plaster anchor the tube to the skin and hold the tube in the kidney; the tube is changed about every two months. I should like to ask Dr. Boyd how he gets the large flanged tube out through the small wound, especially when concretions so frequently form on it. Another patient, with a single hydronephrotic kidney and dilated and tortuous ureter, was in almost constant pain and at times had terrific colic. He was in misery. A nephrostomy was done and a tube put in, and he attended to his business with the tube strapped on his loin, similar to the method used in the other case. He was relieved entirely and after he had worn the tube three months he let it slip out. He lived in the country and did not return for a week and when he came in he told me he was perfectly well; his wound had almost completely healed and he was voiding all urine through the urethra. The tube could not be replaced. This was two years ago and he has remained well ever since.

DR. M. L. BOYD, Atlanta, Ga.: I desire to try to impress on you that this is a highly satisfactory method of kidney drainage. It works well when the patient is lying down as well as when he is on his feet. At night an extra piece of tube is inserted between the bag and the nephrostomy tube and the bag is put on one side of the bed. My patient has taught school in a town for a year now without any one discovering that he has a physical abnormality. There is a point about cystectomy which I shall take this opportunity to bring out: Recently a patient was referred to me by Dr. Lawson Thornton; he had been run over by a truck and had a fracture of the pubis and ischium on both sides, with a rupture of the urethra at the

point where the prostatic urethra joins the membranous urethra and an extravasation of urine about the bladder; the left side of his chest was also rather badly crushed. A few years ago I had a similar patient in whom the wound and the fractures became infected because it was necessary to drain the area into which the urinary extravasation occurred, and the patient died from the infection. To prevent infection in this patient I fastened a Pezzer catheter in the bladder and placed a quarter inch tube with many fenestrae in the wound on each side of the bladder, extending as far down as the fractures of the ischia. I closed the suprapubic wound loosely about the tubes and then had surgical solution of chlorinated soda run down the fenestrated tubes every few hours and the tubes gently rotated often enough to keep the fenestrae open. The fractured bones and the suprapubic wound healed without becoming infected and the patient had practically no fever. In cystectomy, when death may well be, and often is, due to infection of the cystectomy wound, it seems evident that the use of surgical solution of chlorinated soda in a somewhat similar manner would prevent infection and lower the operative mortality. In reply to the question about the length of time the winged catheter is left in the nephrostomy wound after operation, I would urge that Dr. Cabot's article be read. He employs the winged catheter because a straight nephrostomy tube is kept in its proper place with much difficulty during the first few weeks after the operation. As soon as the wound heals down around the tube, it is replaced by a straight tube having an opened end and a fenestra. My patient changes his nephrostomy tube every six weeks. It is evident, however, that such a tube would have to be changed more frequently in many patients; but the removal, cleansing and replacing is done easily by the patient or by his wife. The tube must not be kept out of the wound but a short time or it will not go back easily.

RADIOTHERAPY FOR HODGKIN'S DISEASE AND LYMPHOSARCOMA

ARTHUR U. DESJARDINS, M.D.
ROCHESTER, MINN.

From the point of view of pathologic classification as well as from that of clinical differentiation, the group of diseases that Mallory collectively designated by the term lymphoblastoma is still rather confusing. Pathologists do not have any difficulty in recognizing typical examples, but sometimes the pathologic features are far from characteristic, and absolute differentiation may be difficult or impossible. As far as Hodgkin's disease and lymphosarcoma are concerned, the clinician can seldom distinguish one condition from the other, but must depend on the pathologist.

It is now clear that these conditions are much more common than they were formerly thought to be. The etiologic factors are still obscure. Certainly, the attempt to incriminate the bacillus of tuberculosis or some other micro-organism has not been successful. In any large series of cases a background of tuberculosis can be found in a certain percentage, but in the majority tuberculosis does not appear to play any part. More often careful inquiry brings information suggesting chronic infection of the tonsils, teeth, nasopharynx or other structures as a probable etiologic factor. The frequency with which this theme stands out leads one to infer that not tuberculosis alone, but prolonged chronic infection of any kind may give rise to the inordinate hyperplasia of lymphoid tissue which typifies these undoubtedly related diseases. Moreover, the comparative frequency with which a familial tendency is encountered suggests an hereditary predisposing factor. As the tissues of descendants must, on the average, have the composite characteristic of those of ancestors, parents who have a so-called lymphoid constitution may be expected to have children with a similar characteristic.

The disease may be acute or chronic. Here age plays a definite part, in the sense that the younger the patient the more active the disease, the more rapidly the nodes enlarge and other nodes become affected, the more quickly the general condition deteriorates and the sooner the patient dies. In children, therefore, Hodgkin's disease may run its course in a few months, whereas in adults the disease may extend over many years. In both conditions the average duration is from two to three years, but some patients may live ten or even twenty years from the onset of symptoms.

SYMPTOMS AND PHYSICAL SIGNS

The most common presenting symptom is enlargement of the lymph nodes, which usually appears first in the neck and later may extend to the axilla, mediastinum, groin and abdomen. In a small percentage of cases the inguinal nodes may be the first to increase in size, and this leads one to suspect that the etiologic factor in such cases is probably situated in the abdomen or pelvis. A peculiarity of the hyperplastic nodes is a characteristically soft and rubbery consistency. Until they attain a certain size they usually remain discrete, but this feature may appear to be lost when the nodes become so numerous and large that they form irregular masses, with the nodes so closely packed that the line of cleavage is difficult to perceive. Besides superficial lymphadenopathy, symptoms of respiratory embarrassment suggesting enlarged mediastinal nodes, with various manifestations of obstruction of the air passages or great vessels, are quite common. Even when mediastinal lymphadenopathy does not appear to be pronounced, marked hydrothorax may be present. In a few cases diffuse infiltration of the pulmonary parenchyma in one or more lobes may be observed. In some cases enlargement of omental, biliary, mesenteric or other paravertebral nodes may manifest itself by vague or definite gastro-intestinal disturbances, increasing constipation, slight icterus and, sometimes, ascites. Occasionally, the liver extends below the right costal arch, and the clinician may infer that the organ is actually enlarged. Lymphosarcomatous infiltration of the liver is far from rare, especially during the late stages of the disease; however, in many cases of Hodgkin's disease as well as of lymphosarcoma, palpability of the liver may mean merely that enlarging paraaortic nodes below and behind the organ may have forced it upward and forward and thus tilted the anterior border downward below the costal margin. The size of the spleen may or may not be increased; usually the enlargement is slight or moderate. Seldom does the spleen attain dimensions such as those frequently encountered in myelogenous leukemia. In exceptional cases, the preauricular, occipital, and epitrochlear nodes on one or both sides may become palpable; inguinal nodes may fill Scarpa's triangle and even extend down Hunter's canal, and, rarely, nodular, lymphoid hyperplasia in the orbit may cause exophthalmos. Rarely also the patient's complaints are centered in the gastro-intestinal tract and consist chiefly of pain simulating that of gastric or duodenal ulcer. In cases of this kind, enlargement of superficial or mediastinal lymph nodes may be lacking, and the real character of the condition may not be suspected or recognized

From the Section on Therapeutic Radiology, the Mayo Clinic.
Read before the Section on Radiology at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

clinically or roentgenologically. Even the surgeon who performs an exploratory laparotomy seldom realizes the true state until the pathologist discovers that the ulceration or infiltration is lymphosarcomatous.

Weight and general condition often are not greatly disturbed; loss of weight, indeed, is not a prominent feature, but loss of strength is more common, especially when impairment of respiratory efficiency or other symptoms are marked. An almost constant feature, both of Hodgkin's disease and of lymphosarcoma, is a waxy pallor which appears fairly early and is most pronounced in children and young adults. Fever occurs perhaps in 10 per cent of the cases and seems definitely related to invasion of the abdominal nodes, because, when masses of enlarged mesenteric or para-aortic nodes are made to retrogress by suitable exposure to roentgen rays, the fever often abates or may disappear completely. The same is true of local or general pruritus, which is a fairly common complication and which is probably related to enlarged biliary nodes, although biliary obstruction is rarely sufficient to cause more than a trace of jaundice. In any event, itching almost invariably subsides or disappears after thorough irradiation of the upper two thirds of the abdomen. Pruritus is often associated with toxic manifestations of the skin, either in the form of discrete papules that may have been infected by scratching or as an irregularly diffuse, more or less roughened and thickened sheet of infiltration. The less severe forms of cutaneous disturbance generally vanish as the activity of the disease is subdued by irradiation; marked and extensive lesions of the skin also may improve but seldom disappear completely, probably because such lesions generally accompany advanced disease.

So far as the blood is concerned, the hemoglobin is usually low, but in the majority of cases the number of erythrocytes and leukocytes is approximately normal. Of the minority cases about half exhibit leukocytosis, chiefly lymphocytic, and half present more or less marked leukopenia. Eosinophilia is common in typical cases of Hodgkin's disease.

Lesions of the bone may be of two kinds: those associated with involvement of the bone marrow and characterized by increasing, localized but irregular porosity and loss of density and those caused by pressure of adjacent, hyperplastic nodes; the latter occur most commonly in the sternum and ilium, but have been seen in the humerus, vertebrae and other bones. As a rule, invasion of the bone marrow occurs rather late in the course of the disease and is often accompanied by a deep, boring or grinding pain; the onset of pain of this kind is a decidedly unfavorable sign. The affected bones may disintegrate and disappear completely. The type of lesion caused by external pressure may occur at any time. An opinion generally held is that considerable pressure is required to erode bone. In fact, all that is needed is pressure sufficient to interfere with circulation in the periosteal vessels; if such interference extends over a certain area and is maintained for a sufficient length of time, erosion will certainly occur. Therefore, disturbance of the bones from external pressure may arise wherever a mass of enlarged lymph nodes may be tightly pressed against an unyielding bony surface by continued hyperplasia.

DIFFERENTIAL DIAGNOSIS

In a greater proportion of cases Hodgkin's disease affects children and young adults, the disease being most common between the ages of 20 and 40 years; lymphosarcoma, on the other hand, tends to occur later, the greatest incidence falling between the ages of 40 and 60 years. This, however, is of little value for differentiation, because Hodgkin's disease may occur later and lymphosarcoma earlier than the age periods mentioned. In the average case, therefore, the age of the patient can be little more than suggestive. In lymphosarcoma the disease tends to metastasize more widely than in Hodgkin's disease; that is to say, a larger variety of organs or structures may be affected, but this point also is of slight diagnostic significance, because infiltration of orbital tissues, brain, kidney, pelvis and other structures seldom affected by Hodgkin's disease occurs rather late. Microscopic examination of an excised node furnishes the most reliable information, but even this is not infallible. Although lymphosarcoma cannot be distinguished from Hodgkin's disease by the clinical features alone, such features are usually sufficiently characteristic to permit recognition of Hodgkin's disease and lymphosarcoma from any other condition. Difficulty may occasionally arise when lymphadenopathy is confined to the mediastinum, but the exceptionally rapid retrogression of enlarged mediastinal nodes after exposure to roentgen rays provides an almost infallible means of removing any uncertainty between Hodgkin's disease and lymphosarcoma, on the one hand, and aneurysm of the aorta, carcinoma of the bronchus or lung, or other varieties of tumor, on the other hand. As a diagnostic measure, the radiotherapeutic test is often invaluable, especially in distinguishing Hodgkin's disease and lymphosarcoma of the mediastinal nodes from aneurysm or other tumors of the mediastinum, when biopsy is out of the question. When complications arise the nature of which is not at once obvious, irradiation provides a ready means of ascertaining whether the complicating condition is caused by metastasis of the lymphoid disease or by some independent disturbance. For example, a patient with lymphosarcoma may at some stage of the disease develop recurring headache, and thought and speech may become sluggish. Irradiation of the entire head may be followed by the prompt disappearance of the cephalic symptoms, thus proving them to have been due to metastasis. Many other examples might be cited.

PROGNOSIS

In almost all cases of Hodgkin's disease and lymphosarcoma the prognosis is decidedly unfavorable. Permanent cure of lymphosarcoma is unknown, but a small percentage of patients with Hodgkin's disease are known to have recovered fully and to have remained well for a sufficiently long time to justify the expectation of permanent cure. In these cases only two or three nodes on one side of the neck were slightly involved; thorough, repeated irradiation caused the nodes to disappear and, without additional treatment, evidence of recurrence or renewed hyperplasia has not been found for many years. Many other patients remain well for several years but require treatment from time to time. The duration of the disease, in the average case of Hodgkin's disease and lymphosarcoma, is approximately two and a half years; that is, without treatment. Proper treatment may prolong the life of the average patient by one or two years, but the life of individual patients may be extended by five or more years. However, if exposure to roentgen rays does not notably prolong the life of the average patient, it can control the manifestations of the disease, relieve

symptoms completely or to a considerable degree, and restore the patient to normal condition and full activity or reduce disability for a goodly portion of the time he is destined to live.

TREATMENT

Except for biopsy, surgical excision of enlarged nodes or masses of nodes is now recognized as a useless procedure, because it is almost always followed by hyperplastic enlargement of other nodes. Nevertheless, some patients are still being subjected, sometimes repeatedly, to operations that are profitable only to the surgeon. In fact, many operations undertaken to provide tissue for microscopic examination are really unnecessary. Although knowledge of the pathologic distinction between Hodgkin's disease and lymphosarcoma may have academic interest for the physician, such knowledge is of little consequence to the majority of patients, because the treatment of the two conditions is essentially the same. The only effective method of treating these conditions is radiotherapy, and irradiation by means of roentgen rays has many advantages over radium. It is often advisable to irradiate many different areas. To do this with radium would require a quantity that is available in only a few institutions; even then irradiation is not likely to be as uniform as when roentgen rays are employed. Moreover, facilities for roentgen therapy are much more widely scattered than are facilities for high-grade treatment with radium. To attempt to treat a condition such as Hodgkin's disease or lymphosarcoma with a few milligrams of radium is not to take one's responsibility to the patient very seriously, unless more adequate means are not available for a long distance.

For a number of years many radiologists have been treating such patients with rays generated at approximately 200 peak kilovolts. High voltage roentgen generators are valuable and often indispensable for the treatment of certain varieties of tumor, but this is not true of lymphoid tumors in general. Lymphocytes are the most radiosensitive of all cells, and rays of medium wavelength are more useful in the long run. Another important reason why rays of short wavelength should not be used as a routine is that in many cases so many areas must be irradiated that the blood may be seriously injured. Even if the blood and the body generally should be able to weather one such storm, it cannot be subjected to such strain repeatedly without risk. If those who use and advocate high-voltage irradiation could boast of cure or if they could show greater long range benefit, one would have to admit that the method rests on a sound basis. However, since permanent cure by any scheme of irradiation is extremely rare, that method is best which yields the greatest retrogression of lymphadenopathy, controls lymphoid hyperplasia for the longest period, and places the least strain on the blood and on the general condition of the patient. The probable reason why many radiologists employ rays generated at a relatively high voltage is that the initial response is impressive and gratifying to themselves as well as to the patient; but, unless small quantitative doses are employed, exposure of the same territory to rays of short wavelength cannot be repeated more than three or four times without risk of injury. When this resource has been exhausted and, a few weeks or months later, the lymph nodes again enlarge and cause increasingly serious symptoms, nothing more can be done, and the patient cannot obtain even temporary relief.

In most cases rays of medium wavelength are distinctly preferable. Lymphoid cells are so sensitive to irradiation that a moderate quantitative dose of rays generated at 135 or 140 peak kilovolts and filtered through either 4 mm. or 6 mm. of aluminum, depending on whether the nodes irradiated are situated in the subcutaneous tissues or in the mediastinum or abdomen, is sufficient to induce marked regression of the hyperplastic nodes. Exposure of many areas to rays of this quality may be repeated several times without undue risk, especially when the interval between exposures (courses of treatment) is a matter of months. Moreover if, after the same territory has been irradiated many times, the rays become less effective, resort may still be had to roentgen rays of shorter wavelength or to radium.

Roentgen treatment may be given by one of two methods. Either irradiation may be confined to regions in which enlarged nodes can actually be palpated, or it may be somewhat more general at the outset and later restricted to regions in which fresh lymphadenopathy appears. The first method may be employed when treatment is given to patients who live within a limited radius and who can readily consult the radiologist. Even under these circumstances, however, this method is inferior to the second, because experience with Hodgkin's disease and lymphosarcoma teaches that, even though lymphoid hyperplasia may appear to be confined to the cervical, axillary or inguinal nodes or to two or all three of these groups, more careful investigation or the lapse of a short time often reveals that the mediastinal, and sometimes the abdominal, nodes also are already involved or become involved so soon that little time could elapse between irradiations. As a rule, the general condition of the patients treated by this method cannot be kept at so satisfactory a level. This does not apply to all cases, however. If the patient consults the physician early in the course of the disease, which may then affect only a few nodes in the neck, the first irradiation may be limited to the cervical regions or preferably to the cervical regions and the mediastinum, and should be repeated two or three times at intervals of three weeks or until the lymphoid hyperplasia has disappeared.

The second method of treatment is preferable for the majority of patients who, presenting cervical and axillary, cervical, axillary and mediastinal, or cervical, axillary, mediastinal and inguinal lymphadenopathy, may be presumed to have or actually have abdominal (mesenteric, retroperitoneal or para-aortic) involvement as well. It consists in irradiating not only groups of nodes demonstrably affected but the mediastinal and para-aortic nodes, even when lymphoid hyperplasia in these regions cannot be recognized clinically or roentgenologically. In the average case such a course of treatment requires from six to ten or twelve days, depending on the general condition of the patient and his ability to tolerate irradiation. If the physical status of the patient is accurately appraised and the treatment adjusted with judgment, the condition of the patient improves rapidly while he is under treatment, and the systemic reaction is seldom sufficient to interfere. But if the treatment is crowded into too short a time, the systemic reaction may be so severe as to set the patient back for some time or even to hasten the fatal outcome. If, on the contrary, the treatment is spread over too long a period, its effectiveness is greatly diminished. A second course of similar treatment should be given three weeks after the termination of the first, and a

third course four weeks after the termination of the second. Whether the third course should be as general as the first and second courses depends on the extent of the disease at the outset and the degree of retrogression that has followed the first two courses of treatment. Usually, when clinical or roentgenologic evidence of mediastinal lymphadenopathy was not obtained at the start, the third course need not include the mediastinum or abdomen. Thenceforth, irradiation may be limited to regions in which residual adenopathy persists.

In women aged less than 38 or 40 years, the lower half of the abdomen and the pelvis should not be exposed to the rays at any time, because to do so would be to risk inducing an artificial menopause that would only tend to complicate the precarious situation. Also, when actual or presumptive evidence of abdominal involvement does not exist, this part of the trunk should be irradiated only through posterior, paravertebral fields, because this is followed by less severe systemic reaction than when the rays are made to enter the abdomen through its anterior surface. Moreover, the abdominal nodes most commonly affected and those most likely to cause symptoms in this region are situated along the abdominal aorta, near the spinal column, and these can be irradiated quite as satisfactorily from the posterior as from the anterior aspect of the abdomen. If the spleen also is enlarged, it should be included in the left posterior abdominal field and should receive additional irradiation through anterior and lateral abdominal fields.

Once the disease has been brought under control, that is, once the enlarged lymph nodes have disappeared or retrogressed to the maximal degree, the patient should be instructed to submit himself for examination at regular intervals of three months, and such an examination should include roentgenologic inspection of the thorax for involvement of the mediastinum. As such conditions seldom cause pain, it is not safe to allow the patient to remain unexamined until he becomes aware of fresh symptoms. Otherwise lymphoid hyperplasia in the mediastinum or abdomen may assume considerable proportions before physical deterioration attracts the attention of the patient to the possibility of more or less serious complications, when treatment may be more difficult and less effective.

Unless leukopenia is extreme, it is not a contraindication to treatment. Indeed, unless the leukocytes number less than 1,500 to the cubic millimeter of blood, leukopenia is a peremptory indication, but under such conditions great caution must be exercised in arranging and administering the treatment. With proper irradiation the number of leukocytes increases, the percentage of hemoglobin rises and, if abnormally low, the number of erythrocytes also increases. It is a common experience to see an initial leukocyte count of 2,000 to the cubic millimeter of blood return to normal or thereabouts within three weeks after a course of roentgen therapy. The percentage of lymphocytes which, in Hodgkin's disease and lymphosarcoma, is often abnormally high, gradually falls toward the normal level. Leukocytosis, on the other hand, tends to disappear. Not infrequently an initial leukocytosis and erythropenia readjusts itself; the leukocytes diminish and the erythrocytes increase in number until the corpuscles recover something approaching their normal numerical status. Excessive irradiation, however, may be counted on to induce leukopenia which may continue for some time, but unless this condition results from too frequent or too often repeated irradiation, the cells tend to regenerate.

Hyperplasia of mediastinal lymph nodes may be pronounced and may cause more or less marked dyspnea by direct pressure on some of the air passages, or dyspnea may be secondary to hydrothorax, usually unilateral, induced by pressure of enlarged nodes on the great vessels, especially the veins. Dyspnea, however severe, need not interfere with treatment. Indeed, relief cannot be expected without treatment, but this must be given in short daily sessions, the length of the sessions being such as to avoid systemic reaction that would tax the patient's strength. If dyspnea is related to hydrothorax, the fluid should be withdrawn by thoracentesis before irradiation. The pleural cavity need not be completely drained, but a sufficient quantity of fluid should be removed to diminish respiratory embarrassment appreciably. The remaining fluid will be absorbed spontaneously, as irradiation causes lymphoid hyperplasia to diminish.

EFFECT OF TREATMENT

Almost invariably, the effect of treatment is rapid reduction in size of the enlarged lymph nodes in the irradiated regions. Large packs of hyperplastic nodes in the neck, axilla, mediastinum or elsewhere diminish 25 per cent or more in two or three weeks; additional treatment generally causes them to disappear, or the nodes may persist as small, barely palpable granules. When the disease has reached an advanced stage, however, treatment may not be so effective. As used here, the expression "advanced stage" does not refer to the size of the enlarged nodes, to immediate seriousness of the related complications or even to extent of involvement, although these different factors play a part, but to the stage as related to the course of the disease in the individual patient. In every case there comes a time, which may be designated as the critical point of the disease, when the general condition of the patient has been so undermined that little recuperative power remains. Irradiation at or after this period is much less efficacious, and too concentrated treatment may readily abbreviate rather than lengthen the period of survival.

Engorgement of the superficial veins of the face, neck and upper part of the thorax from pressure on veins by enlarged nodes in the upper part of the mediastinum and distention of the superficial thoracic veins from venous obstruction low in the mediastinum quickly recede. Dyspnea caused by pressure of hyperplastic nodes on the air passages or by accumulation of pleural transudate is often relieved within a few days. This is especially true when respiration is obstructed by enlarged nodes, because even slight regression of the nodes may be sufficient to release the bronchi from pressure. When dyspnea is due to hydrothorax, the respiratory difficulty diminishes only as fast as the fluid is absorbed. Diffuse parenchymatous infiltration of the lung and the symptoms that attend such infiltration generally subside after irradiation, but in my experience the infiltrate never disappears completely. Gastro-intestinal disturbances, which usually take the form of colic and increasing constipation and are caused by mechanical interference by enlarged mesenteric nodes with the transit of fecal material through the bowel, rapidly subside. Enlargement of the liver from actual parenchymatous infiltration is a comparatively late manifestation, especially of lymphosarcoma, and it is seldom affected notably by irradiation. The

more common forward and downward displacement of the organ by pressure from enlarged retroperitoneal (mesenteric and para-aortic) nodes often diminishes or disappears after thorough irradiation of the affected nodes through posterior fields. Edema of the lower extremities, from pressure on veins of enlarged inguinal or iliac nodes, diminishes and disappears. Fever and toxic cutaneous manifestations, when present, abate somewhat more slowly than the other clinical disturbances mentioned, because they usually occur later in the disease. Equally rapid regression of nodular or diffuse lymphoblastomatous infiltration of the orbit, testis or other structures and cessation of bronchial hemorrhage or hematuria after irradiation prove the lymphoid character of the infiltrate.

In the majority of cases the rate of regression is characteristic and corresponds to the rate at which normal lymphocytes are known to be destroyed by irradiation. So characteristic is this rate of regression that it can be and is being used daily to distinguish lymphoid tumors from other varieties of benign or neoplastic lesions. For this purpose it is quite as dependable as, and sometimes actually superior to, microscopic examination. The rate of regression may vary somewhat in different patients, but, with one exception, such variation is never sufficient to confuse the experienced radiologist. The exception referred to occurs rarely and consists of secondary, purulent infection of nodes already affected by Hodgkin's disease or lymphosarcoma. In such cases exposure of the doubly diseased nodes may be followed by recession, but the reaction is slight and slow, in striking contrast to the behavior of nodes not secondarily infected. In a small percentage of cases, on the contrary, regression of the hyperplastic nodes may be extraordinarily rapid; so rapid indeed that instead of a 25 or 50 per cent recession in three weeks, a large tumor may disappear completely within a week. Almost always such regression occurs among children or young adults; it indicates a relatively acute condition, and has an especially unfavorable prognostic significance. Lymphoid hyperplasia that recedes at such an excessive rate generally becomes active again in a short time, and the patient is doomed to early death.

When bone is eroded by pressure of adjacent hyperplastic nodes, thorough treatment of the responsible nodes may suffice to stop the erosive process, but repair of the defect is likely to be slow. For a time disorganization of bone secondary to involvement of the marrow may be checked or stopped by irradiation and a measure of regeneration may follow, but complete regeneration seldom occurs before the patient succumbs to the disease. Also, too intense treatment, on the mistaken assumption that the defect may represent primary disease of the bone, may interfere with its repair.

ABSTRACT OF DISCUSSION

DR. JOHN H. MUSSER, New Orleans: A point that needs to be accentuated concerns the existence of abdominal or mediastinal Hodgkin's disease. In the presence of abdominal Hodgkin's disease the enlargements of the inguinal lymph nodes I think are frequently overlooked. These enlargements are often considered to be the usual enlargements that occur frequently in every individual. Of course, that is only for a relatively short time. Also the axillary involvements are in a great majority of instances indications of mediastinal involvement. Hodgkin's disease may be considered fundamentally a disease that involves the reticulo-endothelial system; therefore the lymph nodes, the spleen, the liver and the bone marrow are the tissues that are affected in practically every case. In certain instances the involvement is greater in some of these structures than in others. Of particular interest is the reaction of the patients from the point of view of their blood picture. Here is a patient who has a gradually progressive anemia and who has a differential leukocyte count and a total leukocyte count that may show marked deviations from the normal. Sometimes there is a leukocytosis, at times a normal count and frequently distinct variations in the cell percentages. The thing that pleased me particularly in this paper was the great conservatism with which the author dealt with the question of the treatment of Hodgkin's disease. It is a spectacular thing to give large doses, so that the lymph nodes disappear almost like snow under a summer sun; but it is to my mind extremely deleterious. One of the deleterious effects is found in the production, as I have seen in several instances, of extremely profound anemias, which were just about as typical as could be of aplastic anemia. Conservatism in the treatment of these patients is going to prevent any profound change. The pathologic steps advance from hyperplasia to the formation of large cells, and eventually to fibrosis. When the fibrotic change occurs in the lymph node, the patient has about reached the end of his string. Fibrosis can be deferred for a period, at least, and for some for a considerable length of time, by the careful and conservative application of the roentgen ray.

DR. WALTER L. MATTICK, Buffalo: I should like to ask Dr. Desjardins, in the remarkable case that he spoke of in which apparently the patient had been treated for Hodgkin's disease and the treatment was not necessary for a period of eight or ten years, if he had biopsy sections. Dr. Desjardins may have presented a new way in treating this disease. He has maintained that this is a better treatment for some years back, and probably he has proved his point. The most difficult problem for the pathologist is to differentiate between Hodgkin's disease and lymphosarcoma and other chronic diseases, such as granuloma; hence the term lymphoblastoma, the grab-basket, so to speak, for those cases which the pathologist cannot definitely label.

DR. A. U. DESJARDINS, Rochester, Minn.: In my experience, itching does not occur in such a large percentage of cases as Dr. Musser seems to have found. Most patients do not complain of itching at any time. Generalized pruritus is complained of by perhaps 5 per cent of patients. The itching may be related to enlargement of the biliary lymph nodes, interfering with, although not obstructing, the flow of bile and causing congestion of the liver. This thought has run through my mind during the last few years but I have not been able to prove the point. In some cases the anterior border of the liver is found to be two or three fingerbreadths below the costal margin, sometimes even more. There is no doubt that, in lymphosarcoma, infiltration of the liver takes place in a certain percentage of cases; I cannot give exact figures. In Hodgkin's disease, infiltration of the liver is less common. When, in such a case, the abdominal lymph nodes are irradiated from behind or anteriorly and posteriorly, the liver gradually slides upward and backward into normal position. I have assumed that the liver had probably been pushed forward and downward by enlarging retroperitoneal lymph nodes. As the nodes recede, the liver slips back again into position. I may be wrong, but the clinical circumstances before, during and after treatment seem to support this idea. Dr. Musser mentioned the condition of the blood. Many hesitate to irradiate a patient with leukopenia. Unless the leukopenia is extreme, it is actually an indication for treatment and the patient will not improve without it. If the number of leukocytes is not less than 2,000, one should go right ahead with treatment. If this is given in relatively short sessions and spread over a reasonable time, the leukocytes gradually increase in number and the condition of the patient improves rapidly. In some cases leukocytosis is accompanied by a low percentage of hemoglobin. As the treatment proceeds, the leukocytes diminish and the erythrocytes increase in number, and in one or two months the blood cells may be approximately normal. The degree of cellular recovery depends largely on the stage of the disease at which the patient is treated. In a small per-

centage of cases, mediastinal involvement and infiltration of the lung itself are encountered. Such infiltration often gives rise to the assumption of tuberculosis; in some cases it is a tuberculous affair, but in others it represents lymphoblastomatous infiltration of the lung. Under careful treatment, this can usually be made to recede, but I have never seen it disappear completely.

CLINICAL PARTITION OF BLOOD PROTEIN BY SCOPOMETRY

I. PRELIMINARY REPORT

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AND
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More work has been done on proteins than on any other of the body substances, and their great importance in health and disease is indicated by the rôles they play in nutritional, metabolic, serologic, immunologic and similar phenomena. Thus physicians are interested in the behavior of proteins under different clinical conditions; physiologists are interested in their functions, and chemists in their structure and in other fundamental characteristics.

From the chemist's point of view it suffices for the present purpose to point out that the subtleties and complexities of proteins account for the incompleteness of our knowledge of them; also to note that the recent brilliant works of Svedberg and Sorenson not only do not contradict but actually substantiate and explain the early practices of Kauder and Hofmeister, who separated proteins by relating their solubilities to molecular size.

It was reasonable to expect that the application of this principle to separating the protein components of blood would increase our knowledge of the behavior of proteins and prove otherwise clinically useful, and it is true that valuable information has been gained in this way. The confusing and meager character of existing clinical data, however, suggests that realization has fallen far short of expectation.

A variety of technical difficulties accounts for the situation. Proteins are so sensitive that time and manipulations change their identities, and the original concentration, the mass of each fraction, the lipoid content and the hydrion concentration markedly affect determinations. In an effort to avoid these subtleties a number of different methods have been used, giving conflicting data with resulting confusion, and the meagerness of clinical information, even on fibrinogen, albumin and globulin, must be laid to technics that are too laborious and exacting for clinical routine. Technical difficulties also explain the inability to study the behavior of the protein subfractions.

Our experience with a protein precipitate that shows consistent relations between protein value and transmission of light led us to attempt the separation and measurement not only of albumin and globulin but also of their subfractions, and the present report outlines a practicable clinical procedure that is quantitative and reproducible when the prescribed conditions are rigidly adhered to. As constituted at present, the system includes total protein, globulin, albumin and fibrinogen; four globulin and three albumin subfractions, and two fractions found by us so far only in certain pathologic conditions of the blood.

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OUTLINE OF THE PROCEDURE

The method is applicable to plasma or cellular constituents separately. It is based on the precipitation of protein with a sulphosalicylic acid reagent [1] and on the measurement of the light transmissions of resulting turbidities with the photo-electric scopometer.[2] This instrument is exceedingly sensitive over a wide range of color and turbidity and offers a novel means of making unusually quick and accurate measurements. In fact, it places measurements of turbidity on a new plane of usefulness.

The general appearance of the photo-electric scopometer is seen in figure 1, and a calibration we have been using for protein determinations, in figure 2.

The principle of the procedure may be illustated by diluting plasma five times and placing 1 cc. in each of twenty similar tubes. To each of these in turn 9 cc. of ammonium sulphate is added in increasing concentrations so that the tubes represent successive steps between 1:20 and complete saturations of ammonium sulphate. The results of the experiment are shown

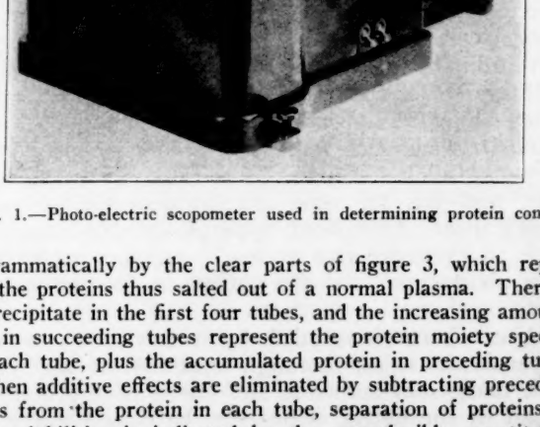

Fig. 1.—Photo-electric scopometer used in determining protein content.

diagrammatically by the clear parts of figure 3, which represent the proteins thus salted out of a normal plasma. There is no precipitate in the first four tubes, and the increasing amounts seen in succeeding tubes represent the protein moiety specific for each tube, plus the accumulated protein in preceding tubes.

When additive effects are eliminated by subtracting preceding values from the protein in each tube, separation of proteins by their solubilities is indicated by the reproducible quantitative relations shown diagrammatically by the black parts of figure 3.

It will be noted that there is no protein in the first four tubes and very little in tubes 5, 6 and 7. We therefore call the whole amount of protein (less fibrinogen) in tube 7 globulin I. Tube 8 shows such a decided increment that we call it globulin II. Tube 9 also shows a decided increment, and, to be sure that we secure the whole fraction, we combine tube 10 with it and call the sum globulin III. It is patent that the separation of albumin and globulin is clearest cut at tube 12. We therefore combine it with tube 11 to make globulin IV. According to the same plan, tubes 13 and 14 are combined to make albumin I, and tubes 15, 16 and 17 to make albumin II. Albumin III represents the difference between the accumulated protein in tube 17 and the total protein.

The procedure may therefore be outlined as follows: Two cc. of plasma is diluted five times, and six similar samples of 1 cc.

1. Exton, W. G.: A Simple and Rapid Test for Albumin and Other Urinary Proteins, J. A. M. A. **80**: 529 (Feb. 24) 1923.
2. Exton, W. G.: The Present Status of Clinical Laboratory Measurements with a Note on the Photo-Electric Effect, Am. J. Clin. Path. **1**: 237 (May) 1931.

are treated respectively with neutralized ammonium sulphate in 7:20, 8:20, 10:20, 12:20, 14:20 and 17:20 saturations. After filtering and washing, the precipitates are dissolved in saline solution, reprecipitated with sulphosalicylic acid and measured in the scopometer. The total protein is conveniently determined by directly measuring the sulphosalicylic acid precipitate of the one hundred times diluted plasma.

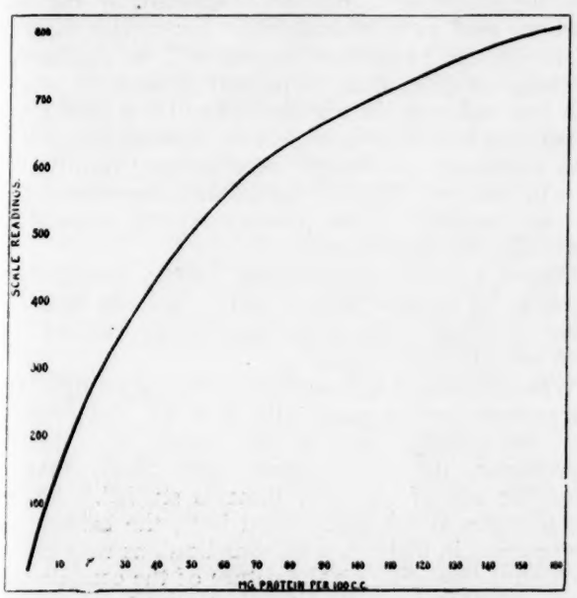

Fig. 2.—Calibration used for protein determinations.

A duplicate 8:20 tube is treated like the others until the precipitated protein has been dissolved in water. Thereafter it is diluted with an equal volume of calcium-free saturated sodium chloride and filtered after standing overnight; the filtrate is precipitated with sulphosalicylic acid and measured like the other tubes. The difference between the two 8:20 tubes then determines the fibrinogen.

While our data on fibrinogen have so far been obtained in this way, it has become evident that satisfactory clinical determinations may be expedited by simply determining the protein content of the 6:20 tube.

It was experimentally determined (fig. 3) that the globulin-albumin separation is clearest cut at 12:20 saturation; also that precipitation in the neutral zone has the decided advantages of spreading the distribution of the fractions and definitely

Data on Normal Blood Specimen

Fibrinogen	3.0%	Total protein, 6,600 mg. per 100 cc.	
7:20 Globulin I	1.6%	Albumin I	28.2%
8:20 Globulin II	4.3%	Albumin II	34.0%
10:20 Globulin III	13.0%	Albumin III	9.1%
12:20 Globulin IV	6.8%	A:G ratio	2.4
Globulins	28.7%	Albumins	71.3%

minimizing their tendency to fall into adjacent groups. Most important of all, however, it practically eliminates changes related to hydrion concentration; protein precipitations in the more acid zones are susceptible to these changes.

In the course of the work it was observed that the physical characteristics of precipitates from some pathologic blood specimens differed from normal blood and from other pathologic blood specimens. These differences were traced to the presence of proteins with presumably smaller molecules, which are not coagulable by heat but which are precipitable in the cold with acetic acid or phenol, thus indicating their proteose or glycoprotein nature. They will be treated in more detail in a later communication.

We have found it expedient to report the results in terms of percentages of total protein, as illustrated on a normal specimen of blood in the table.

It will be observed that the total protein, albumin and globulin can be determined simply and quickly by measuring the globulin (12:20 saturation) and total protein as outlined, and estimating the albumin by subtracting the globulin from the total protein. Experiments now in progress promise still further to simplify and quicken technics by dispensing with filtration, washing and the like.

CLINICAL APPLICATION

According to Peters and Van Slyke: [3]

The plasma proteins may be divided into fibrinogen, the other globulins and albumin. The albumin and globulin fractions, even though each represents a group of substances rather than a clinical unit, show somewhat characteristic behavior in certain clinical conditions. The behaviors of separate members of each group have not yet been studied.

The principal conditions in which the behavior of albumin and globulin have so far been studied are, of course, the renal conditions, collectively known as Bright's disease, and the fine work of Van Slyke and Peters not only places at our disposal better and more complete protein data on these conditions than are available for any other clinical conditions, but also clearly demonstrates the diagnostic and prognostic value of determinations of plasma protein in these diseases. Unfortunately the technics they employ are not practical for clinical routine. The same information is, however, now made available for clinical application by use of the present method.

Although the data in the literature are not so complete as desirable, other studies that have been reported

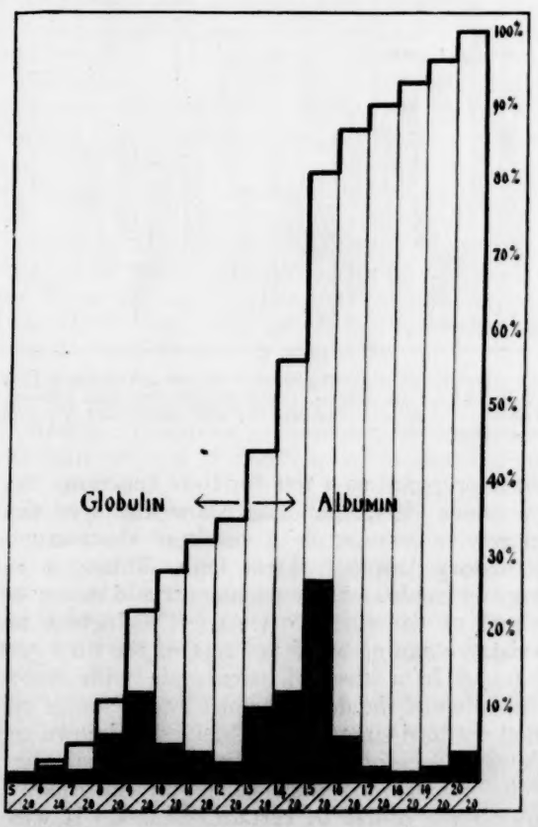

Fig. 3.—Chart showing test tube experiment. The plasma proteins were precipitated by increasing concentrations of ammonium sulphate from 1:20 to complete saturation. The clear steps show the total protein precipitated at each saturation. The dark steps show the protein moiety specific for each saturation.

indicate that abnormal albumin and globulin values are more or less characteristic of a variety of clinical conditions, such as edema and other disturbances of water

3. Peters, J. P., and Van Slyke, D. D.: Quantitative Clinical Chemistry, Baltimore, Williams & Wilkins Company, 1931.

balance or osmosis, acidosis, intoxications, malnutrition, vomiting and diarrhea, hormonal imbalances, immunologic phenomena, anemia, burns, cancer and surgical shock.

The values for albumin and globulin given by the new method are in line with the more reliable previous data. Thus twenty normal male adults gave values ranging from 6,600 to 8,460 mg. of protein per hundred cubic centimeters of plasma, with an average of 7,730 mg. The albumin-globulin ratios ranged from 1.7 to 2.8, with an average of 2.0.

Of the pathologic blood specimens subjected to the method, the lowest protein value was found in a case of carcinoma of the stomach, i. e., 3,870 mg. per hundred cubic centimeters. The highest albumin-globulin ratio, 2.8, occurred in a syphilitic patient, and the lowest, 0.6, in a person with empyema.

Our fibrinogen results are also in line with those previously reported. Our normal results ranged from 2 to 5 per cent, with an average of 3.5 per cent. Because of the theory that fibrinogen originates in the liver, it

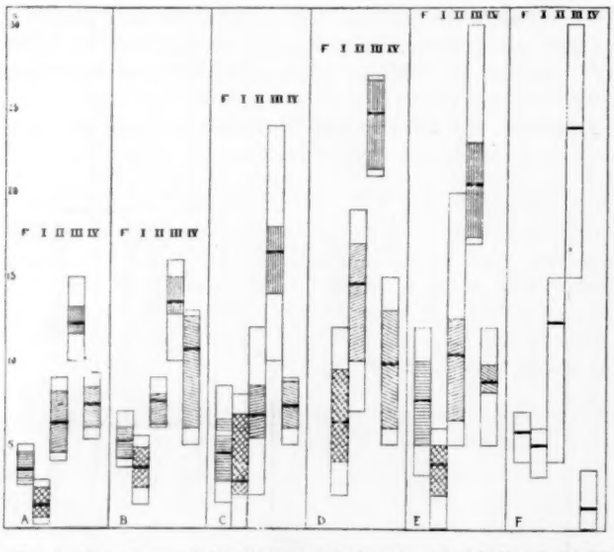

Fig. 4.—Percentage of distribution of fibrinogen and globulins I, II, III and IV in (*A*) normal persons, and in persons (*B*) with diabetes, (*C*) with syphilis, (*D*) with tuberculosis, (*E*) with cancer, and (*F*) with conditions associated with purulence.

has been proposed as a test for liver function. As did the previous data, our data show the tendency of fibrinogen to increase as a result of destructive and inflammatory lesions. Thus high fibrinogen values accompany conditions like pneumonia and cancer of the lung and of the digestive tract. The highest in our material, amounting to 15 per cent of the total protein, was found in a case of pneumonia with empyema. Examination of the data obtained by the simple clinical method outlined suggests that besides its known significance, fibrinogen offers other diagnostic possibilities and that its fluctuations may be highly informative in following the course of certain diseases. It was also interesting to find that fibrinogen is the first of the proteins in normal plasma to disappear on standing overnight at room temperature or in an incubator.

As the behaviors of the subfractions have not hitherto been studied, their determination opens up new fields for research and clinical application. We have determined the subfractions in the blood of twenty normal male adults and eighty-odd people suffering from different diseases, and although we realize that we have so far been able barely to scratch the surface of the clinical problem, we hazard giving some of the results because they seem so interesting and suggestive.

Thus it is clear that the subfractions of normal blood fall within narrow limits, while in many diseases the limits of the subfractions may be wide. Our material also suggests that differences exhibited by the subfractions tend to be characteristic for certain diseases.

The present preliminary report will be confined to the behavior of globulin in normal persons, in persons with four different chronic diseases and in a small group of patients suffering from febrile infections associated with purulence. Although some striking results were seen in cases of Bright's disease and pneumonia, they are not included in the present report, because the material is too incomplete.

Figure 4 shows the averages, middle quartiles and extremes in normal persons and in persons with diabetes, syphilis, pulmonary tuberculosis, cancer and purulent febrile infections.

When diabetes is uncomplicated, the data suggest that the proteins are involved little, if at all, and probably only secondarily, because the values for diabetes approximate the normal much more closely than do those for any of the other diseases studied. According to material not represented here, the behavior of the proteins in diabetes with complications may change markedly, depending on the nature of the complication.

The syphilitic material consists of twenty-five patients, new and old, treated and untreated, which probably explains the wide spreads between maxima and minima. Globulin IV tends to be lower in persons with syphilis than it does in normal persons, but the maxima of the other fractions run considerably higher in persons with syphilis than in normal persons, although the averages are not much higher. It is interesting to find globulins I and II, which some of the literature credits with containing reagin, running so much like the normal.

In the fifteen cases of pulmonary tuberculosis only serum was available, so that the fibrinogen values are unknown. In all of the other pulmonary conditions that we have encountered fibrinogen values were high. The considerably higher values of globulins I, II and III definitely distinguish the blood of tuberculosis patients from that of normal, diabetic and syphilitic patients.

The material composing the cancer group came from sixteen patients suffering from different kinds of malignant conditions, affecting different structures. The specimen of the blood in one case gave distinctly abnormal values in line with other cancers, although the person was apparently well after an operation for removal of the breast. The fibrinogen values ran higher than in any of the other conditions, with the possible exception of tuberculosis, which we were unable to determine. Globulins I, II and III ran definitely higher than in normal persons or in persons with syphilis and diabetes, but they were somewhat less than in persons with tuberculosis. The maximum globulin III values in patients with cancer were those found in patients with pulmonary complications; if these were excluded, the cancer globulin III maximum is less than the tuberculosis globulin III minimum. It is interesting to note that the average globulin IV values are practically the same in normal people as in patients with cancer, being slightly lower in diabetic and syphilitic, and higher in tuberculous patients.

The pus group consists of five cases of acute infections associated with pus. It is included because of the interesting behavior of globulin IV seen in these cases. Instead of increasing as a result of disease, it will be noted that globulin IV markedly decreases. In fact, it disappeared completely in three of the patients, one with a pelvic abscess, one with an appendical abscess and one with a tendon infection. This decrease of globulin IV, with the tendency to high fibrinogen values, distinguishes between the purulent febrile patient and other material presented.

When the total protein and albumin-globulin ratios are considered with the subfraction values, the protein characteristics of different diseases appear even more distinct.

So far as we have been able to study the behavior of proteins in different clinical conditions, it seems reasonable to draw the conclusion that their quantitative relations are not specific in the same sense as the Wassermann test is specific for syphilis, although there are grounds for suspecting that this may not be entirely without exceptions.

Not only do the blood proteins seem to differ according to the nature of diseases in which they are involved, but they also seem to be influenced by the extent or severity of the disease, by complications and by the particular organ or structure affected. The diagnostic and prognostic information they yield therefore promises to be most helpful when correlated with clinical history and observations.

The albumin subfractions will be treated in a later report.

SUMMARY

The underlying principles have been discussed, and a simple clinical method for determining blood proteins has been outlined. As constituted at present, the system includes total protein, albumin, globulin and fibrinogen, three albumin and four globulin subfractions, and proteose and glycoprotein.

The method is adapted to the study of metabolic, serologic, immunologic, enzymatic and similar phenomena involving proteins and applicable to transudates and other body proteins.

Determinations on twenty normal and eighty pathologic specimens of blood are reported in a preliminary way to illustrate the practicability of the procedure for clinical routine and study.

ABSTRACT OF DISCUSSION

DR. FOSTER M. JOHNS, New Orleans: The method of fractionating proteins, as described by the authors, I should say would place it in the realm of clinical application. Some physicians have from time to time attempted to fractionate serum, sometimes with fair results but most of the time with no results. This method, while probably not as fine a method of fractionation as Dr. van Slyke would desire to have it, would be placed within the realm of clinical application, which, after all, is what clinical pathologists want. I can only suggest to Drs. Exton and Rose one fault that I see in their present technic. That is, instead of using filter papers, if they will use a centrifuge with a round bottom tube instead of the conical bottom tube, and pour off the fluid, they will get more nearly the fraction they throw out with each precipitation. With regard to the results obtained, I think the time is not yet ripe to discuss the clinical application of this method. It offers unlimited possibilities and will certainly serve to place a great many reactions, which are now done in indirect ways, on a firm, scientific basis. I need only mention the sedimentation rate of blood. Such a method, which is in wide vogue in Europe, has not obtained quite an equal footing in this country because it was simply an indirect means of determining specific gravity, viscosity or fibrinogen. The accurate measure of fibrinogen with this apparatus will probably give those figures in a much better way.

DR. WILLIAM G. EXTON, Newark, N. J.: I hope I have made it clear that the present paper is in the nature of a preliminary report, which is necessarily incomplete because the subject is quite complicated, so that its presentation would be apt to be confusing if all the data were given. So far we have been taking whatever clinical material came to hand but expect to settle down and study definite types of disease from now on. At present we can only say that we have barely been able to scratch the surface of what appears to be an interesting and many sided clinical problem.

RELATIONSHIP OF THYROID DISEASE TO CHRONIC NONSPECIFIC ARTHRITIS

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No more striking contrast can be conjured up than that evidenced in the symptoms and clinical picture manifested, on the one hand, by the patient suffering from a severe type of exophthalmic goiter, and, on the other, by the patient with obvious hypothyroidism; yet both conditions are the manifestations of some functional disturbance in the thyroid gland. Between these two extremes is that infinitely larger group of persons exhibiting a slighter degree of variation from normal thyroid function. The more general recognition of the fact that chronic, nonspecific arthritis is a systemic disease more than ever directs attention to every possible factor that may play some part in the initiation of such articular changes.

At the outset, it must be stated that by far the greater number of cases of chronic nonspecific arthritis are not attributable to thyroid dysfunction. However, the observation of many patients suffering from thyroid disease of varying severity has centered attention on the part played by these disturbances in the production of atrophic and hypertrophic polyarthritis.

Basal metabolism, in accordance with de Simone's dictum,[1] is the sum total of the formative (anabolic) and destructive (catabolic) phenomena, accompanied by a continuous renewal of molecules by incessant elimination of detritus, which forms a perfect system of dynamic equilibrium. The existence of a neurohormonic mechanism regulator of metabolism is productive of static equilibrium within the organism. The importance of the thyroid gland in human economy is thoroughly recognized, its internal secretory function serving directly to activate and regulate basal metabolism.

Not infrequently the orthopedist hears such a story as this: The patient states that for the past fifteen years she has been having intermittent dull aching in various joints, and that since her goiter has been troubling her, the pains in the joints have become definitely worse. The aggravation of a preexisting arthritis, atrophic or hypertrophic, is characteristic of a distinct metabolic variation, either above or below the normal level. This is particularly noticeable in the presence of hyperthyroidism, and in this type of person less

From the Cleveland Clinic.
Read before the Section on Orthopedic Surgery at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

1. de Simone, Domenico: The Influence of the Thyroid Gland on Arthritism, Rassegna di clin. terap. e sc. aff. **27**: 477, 1928.

dramatic and less consistent improvement is obtained following thyroidectomy than in the cases in which articular pain has appeared during the course of the hyperthyroidism. Diminished thyroid function is readily compensated for by the administration of thyroid extract.

At the Cleveland Clinic, a large group of cases has been seen in which there was an association of hyperthyroidism and some type of articular disturbance. In some of them, no doubt, the association was mere coincidence, as in the cases in which disturbances of the joints of long standing had been aggravated by the appearance of hyperthyroidism. In others, there is evidence to support the view that there is some common basis for the relationship between the hyperthyroidism and the joint disease. These are the cases in which severe and intractable pain in the joints has been relieved completely following thyroidectomy performed to alleviate the hyperthyroidism.

In absolute contradistinction to the patients who have arthritis associated with hyperthyroidism are those, who, for want of more specific evidence, have conditions assigned to the category of so-called endocrine arthritis. Great diversity of opinion exists as to the relative importance of the ovaries, the pituitary, the parathyroid and the thyroid glands in the initiation of these changes in the joints.

Physicians are thoroughly familiar with the clinical picture of the woman who has passed the physiologic menopause or that induced by operation, who has gained weight with the development of stiffness in the knees and, at a later date, has acquired nodules about the distal interphalangeal joints of the fingers. In this type of case, the ankles on occasion also may become painful, and the lower part of the back is frequently an area of great annoyance. It would appear altogether logical to conclude that such developments are the outcome of endocrine imbalance. In this rather complex and confused picture how is one to evaluate to any degree the part played by the thyroid gland?

Neumann and Lande [2] concluded, as a result of their observation of six patients with primary chronic arthritis appearing in immediate conjunction with normal or premature climacteric with some simultaneous disturbance of the thyroid, that the chief factor in the production of this type of articular change in women is a disturbance of the apparatus of the glands of internal secretion, with resultant hypersensibility of the sympathetic nervous system. They believed that, in the light of an inhibiting effect of the ovary and an exciting influence of the thyroid with possibly extraneous factors, such as fatigue, exposure to cold, infection and such conditions, local spasm of vessels about joints occurred, with resultant nutritional disturbance and consequent changes in the joints.

Morawiecka [3] cited a case of exophthalmic goiter connected with scleroderma and osteomalacia, with the conclusion that the changes were due to a condition of the neurovegetative system together with secondary lesions of the endocrine glands.

Cecil and Archer [4] reported on the study of fifty cases of arthritis of the menopause with the conclusion that this form of articular abnormality would appear to be definitely related to the endocrine glands, although the exact nature of the relationship had not been established. In the *Proceedings of the Royal Society of Medicine* for March, 1927,[5] appeared an excellent account of the discussion of climacteric arthritis contributed by many members of the section on balneology and climatology. The opinion of the greater number led to the conclusion that a hypoglandular type of arthritis exists as a fairly definite entity. In the latter two reports, however, there is no specific indication of primary implication of the thyroid.

It is because of this overlapping of effects attributable partially to ovarian and partially to thyroid dysfunction that greater stress has been placed by some on the ovarian factor, largely because of the coincidental cessation of menstruation. However, the theory that this form of chronic disease of the joints is dependent on a dysfunction of the thyroid gland is supported by the repeated description of the beneficial effect of the administration of thyroid in such cases.

Many investigators have stressed the importance of the thyroid as a factor in the so-called endocrine type of arthritis. In 1904, Charles J. Macalister [6] of Liverpool described three cases of progressive rheumatoid polyarthritis in which there was little if any improvement until eventual recognition of the existence of myxedema. The administration of thyroid resulted in great benefit. In 1909, Sir Thomas Barlow made reference to a patient with myxedema presenting signs of rheumatoid arthritis. In the same year, Jones [7] pointed out the experiences of other writers, Blake, Pauchet and Deaver, citing cases of exophthalmic goiter in which there was subsequent recession of symptoms and then myxedema, with eventual development of arthritis, which was relieved by thyroid medication. The frequent coexistence of goiter and arthritis among goitrous patients in the Himalayas suggested to McGarrison [8] a similarity of origin. Of interest in this connection was Bauer's reference in which he pointed out the high incidence of chronic disease of the joints in Tyrol, a circumstance that might be connected with the incidence of endemic goiter in that region. Kocher [9] cured a patient with chronic joint disease (after the extirpation of the thyroid) by the administration of a thyroid preparation.

Because of the results that were obtained in the treatment of the arthritides with thyrogenic preparations, Levi and de Rothschild [10] believed that the thyroid must be involved in endocrine joint diseases. Barker [11] reported striking results with the use of thyroid substance. Jacoud, who was among the first to describe this particular type of articular manifestation, concluded that the arthritides were connected with endemic goiter, because of the fact that persons suffering from joint disease evidenced more or less enlargement of the thyroid gland. Jolkwer [12] referred to the presence of arthritis deformans in cases of hypothyroidism, with relief secured from the administration of a thyroidin preparation.

2. Neumann, R., and Lande, E.: The Etiology and Genesis of the So-Called "Endocrine" Arthritis, Ztschr. f. klin. Med. **100:** 85, 1924.
3. Morawiecka, J.: A Case of "Basedow" Connected with Scleroderma and Osteomalacia, Neurol. Rev., Paris **1:** 217, 1928.
4. Cecil, R. L., and Archer, B. H.: Arthritis of the Menopause, J. A. M. A. **84:** 75 (Jan. 10) 1925.
5. Proc. Roy. Soc. Med. **20:** 511 (March) 1927.
6. Macalister, C. J.: Post-Graduate Demonstration on Rheumatoid Arthritis, Lancet **2:** 194 (July 23) 1904.
7. Jones, R. L., and Jones, A. B.: Arthritis Deformans, Comprising Rheumatoid Arthritis, Osteo-Arthritis, and Spondylitis Deformans, New York, William Wood & Company, 1909.
8. McGarrison, Robert: The Etiology of Endemic Goitre, Milroy Lecture, delivered before Royal College of Physicians of London, January, 1913.
9. Kocher, quoted by Herzberg, M. H.: Endocrine Factors and Chronic Joint Rheumatism, Ztschr. f. klin. Med. **103:** 507, 1926.
10. Levi, L., and de Rothschild, H.: Relation of Dysthyreosis and Chronic Joint Rheumatism, Nouvelles études sur la physiopathologie du corps thyroïde, Paris, O. Doin, 1911.
11. Barker, quoted by Herzberg.[9]
12. Jolkwer, W. E.: On the Subject of Polyarthritis Deformans in Children, Arch. f. Kinderh. **82:** 273, 1927.

Thomson and Gordon [13] concluded that:

> On the whole it is doubtful if variations in thyroid secretion otherwise than by their general effect on nutrition and vitality have any direct influence in determining a tendency to arthritis or fibrositis.

Pemberton [14] also has offered a guarded opinion that the relation of the thyroid gland to arthritis is problematic.

Swaim's [15] studies of basal metabolism in arthritis "emphasize the tendency to low metabolic rates in chronic arthritis, irrespective of the type of arthritis present." He also feels that the metabolic rates are not a true guide to the thyroid dosage in such arthritic patients. A review of the basal metabolic rates in over one hundred cases of arthritis seen at the Cleveland Clinic definitely confirm Swaim's conclusion in this regard.

Clinical judgment and the test of treatment with thyroid extract are much more reliable than the basal metabolic rate as an important diagnostic and therapeutic guide, particularly in minor thyroid deficiencies. The clinical problem is simplified if all these factors agree. The most accurate estimate of the rôle played by the thyroid in such instances can be made from the symptoms and signs clinically. An increase in weight is not essential, but certain criteria which are considered virtually essential in reaching the conclusion that the patient has deficient thyroid function are: dryness of the hair and skin, atrophy of the nails, the presence of numbness and tingling, the presence of edema, increasing drowsiness, diminished energy, lessened endurance, failing memory, coldness and decreasing alertness. These symptoms in conjunction with a lowered basal metabolic rate are adequate evidence of hypofunction of the thyroid gland. Frequently the basal rate of from 10 to 15 is nothing more than a manifestation of exhaustion, and this can be distinctly misleading if the clinical picture is not given adequate consideration.

McCullagh [16] has recently shown that in only 40 per cent of 100 cases of hypothyroidism had there been a gain in weight. Bradycardia was present in only 39 per cent and a temperature below 98 F. in not more than 26 per cent. He also showed that in the presence of typical symptoms of hypothyroidism a diagnosis may be established even though the metabolic rate is not below —10, and, in contrast to this, hypothyroidism may not be present even though the basal metabolic rate is as low as —30. In instances of doubt in diagnosis a thorough trial of the administration of 2 grains (0.13 Gm.) of desiccated thyroid or 10 grains (0.65 Gm.) of the whole gland per day may yield information of considerable significance.

Observations of persons with this type of arthritis in whom symptoms have been manifest for a protracted period show hypertrophic changes about the joints of the lower extremities, particularly in the knees, the lumbar part of the spine and the distal interphalangeal joints of the fingers. The early recognition of this symptom complex, with the administration of thyroid substance in adequate dosage, will abort progressive deformity of the joints in some patients in whom these manifestations have been present. These conclusions are based on the observation of seventy-five women patients in whom the criteria described were found to be present.

One such patient, a woman, aged 60, was admitted to the clinic with the complaint of increasing nervousness and difficulty in breathing. Clinical examination showed that she had an adenoma of the thyroid with hyperthyroidism. The basal metabolic rate was plus 35. In due course thyroidectomy was performed, which resulted in marked improvement in her general state. Two years later she complained definitely of weakness and of pain in both feet; thyroid was prescribed and was taken rather irregularly, with some improvement in the condition. Her hands and feet frequently became numb, and at this time nodular thickening was discernible about the distal joints of the fingers, and there was tenderness on pressure about the margins of each os calcis. She was again given thyroid in a dose of 1 grain (0.06 Gm.) daily. When she was seen again two years after this treatment was instituted, the condition of the joints was negligible. Seven years after operation she had grating in both knees and Heberden's nodes were present; within six months, on the regular administration of thyroid substance, the articular symptoms had become less marked. Here is an instance in which the reactions to hyperthyroidism and thyroidectomy have been observed, with the development of hypothyroidism and the gradual onset and progression of degenerative changes in the joints, materially benefited by the administration of thyroid extract.

Another case of this type was that of a woman, aged 56, who had passed the menopause nine years previous to admission. The presenting complaint was that of pains in the knees and in the right leg, which had persisted for one year. She had pain also in the right forearm and wrist. Clinical examination revealed an obese woman showing no other departure from normal, with the exception of definite crepitation in both knees with fulness and tenderness over the medial side of each knee joint along the tibial articular surface. There was some limitation of movement in the right wrist. The patient was admitted to the hospital, where, following rest in bed and tonsillectomy, she showed distinct improvement in the right wrist and in both knees. The basal metabolic rate was —12. Following discharge and resumption of some activities about her home, the pain recurred in the knee joints and also to a lesser degree in the right shoulder. She remarked that she was very sensitive to cold. She became fatigued readily, both mentally and physically, and had noted some dryness of the skin. She was given thyroid extract in a dose of 2 grains daily, with practically complete disappearance of the joint symptoms.

In the greater number of persons suffering from polyarthritis and manifesting a basal rate lower than normal, a materially closer approach to normal can be secured by the administration of sufficiently large doses of thyroid, particularly if it is given in conjunction with measures for the improvement of the patient's general physical state.

The manifestations of involvement of the joints in cases of hyperthyroidism also present a most interesting clinical problem, which is different in most aspects from that presented by the cases in which there is evidence of hypometabolism.

In 1903, Jones [17] reported in the *British Medical Journal* observations on fourteen patients with typical rheumatoid arthritis, who also evidenced the cardinal symptoms of exophthalmic goiter. Along with these were described six other patients with the so-called larval or incipient type of hyperthyroidism, and in each of these instances the arthritis was of the atrophic type.

The occasional affinity of these two conditions had already been referred to in 1889 by Spender,[18] and in the early part of this century it was felt by numerous

13. Thomson, F. G., and Gordon, R. G.: Chronic Rheumatic Diseases, New York, Oxford University Press, 1926, chap. 13, p. 105.
14. Pemberton, Ralph: Arthritis and Rheumatoid Conditions: Their Nature and Treatment, Philadelphia, Lea & Febiger, 1929.
15. Swaim, L. T.: Chronic Arthritis: Further Metabolism Studies, J. A. M. A. **93**: 259 (July 27) 1929.
16. McCullagh, E. P.: General Medical Aspects of Endocrinology, Ohio State M. J. **28**: 263, 1932.
17. Jones, R. L.: Exophthalmic Goiter and Rheumatoid Arthritis, Lancet **1**: 192, 1909.
18. Spender, J. K.: Early Symptoms and Early Treatment of Osteo-Arthritis, London, H. K. Lewis, 1889.

investigators that there was a more frequent coincidence of these two conditions than was ordinarily believed. It was suggested that an obscure pathologic relationship might exist between the two, because of certain symptoms common to them, such as pigmentation, localized sweatings, transient edemas, vasomotor phenomena, digestive and genito-urinary disturbances, emaciation, and also the fact that fatigue, mental shock and worry often had figured prominently in the previous life histories both of patients with hyperthyroidism and of patients with arthritis.

In 1909, six years after Jones's report, E. I. Spriggs [19] presented before the Royal Society of Medicine a case of exophthalmic goiter with rheumatoid arthritis. It is interesting to note that in the greater number of cases described by these two men the two conditions had occurred concomitantly. In a few instances exophthalmic goiter either arose before or was engrafted on the disturbance of the joints. Since that time there has come to hand further evidence to confirm the statement originally made by Garrod [20] that the overlapping of these two conditions is more than coincidence.

About nine years ago, in the service of Dr. George W. Crile, there was brought to my attention a certain group of patients suffering from severe exophthalmic goiter in whom one of the most outstanding symptoms was an intractable type of articular pain. A striking feature of this abnormality of the joints was that in most instances the pain was referred to one or to both shoulders, with a tendency toward involvement of the joints of the hands, particularly on the side on which the shoulder was implicated. This change, which had taken place in the interphalangeal and metacarpophalangeal joints, appeared to have some relationship to the length of time that the difficulty in the shoulder had existed, and, in turn, the severity of the the symptoms of the joints appeared to be largely dependent on the degree of the hyperthyroidism. In some cases other joints, particularly the knees, caused complaint and showed characteristic departure from normal. Ordinarily these symptoms were not relieved by the use of physical measures, including all forms of heat, which as a rule secure at least symptomatic relief in other forms of joint disease. Even large doses of sedatives failed to secure any lessening of the pain. As a rule, distinct atrophy of the soft structures was noted about the involved shoulders, and a marked degree of limitation of abduction and of internal and external rotation was readily discernible. Anteroposterior movement was free. The joints of the hand on the affected side showed typical pariarticular thickening with restriction of movement in these joints, and in many the skin had a glazed appearance. The inefficacy of therapeutic measures was most striking, despite the fact that the patients were at complete rest in bed and were being given compound tincture of iodine as a part of the routine procedure before thyroidectomy. There was persistent difficulty in the joints even following ligations of the thyroid arteries and subsequent to the first lobectomy, and afterward a dramatic lessening of symptoms following the completion of the thyroidectomy. No more striking change can be visualized than the disappearance of the severe pain from which these patients had been suffering, frequently within from forty-eight to seventy-two hours following the removal of an adequate amount of the thyroid gland.

19. Spriggs, E. I.: Case Report before Royal Society of Medicine, Lancet **2**: 1877, 1908.
20. Garrod, A. E.: Rheumatoid Arthritis, Tr. M. Soc. London **29**: 94, 1905-1906.

The significance of these findings was not fully realized in the earlier cases, and only after repeated similar experiences did it become obvious that the condition of the joints was a definite manifestation of this hyperthyroid state and not a purely coincidental occurrence.

Earlier reports concerning this particular abnormality were made before this section about five years ago, and subsequent experiences, particularly the opportunity of observing these patients over a longer period, have shown conclusively that disturbances of the joints associated with hyperthyroidism represent a definite entity. These opinions are based on observations of 292 patients with hyperthyroidism in whom were manifested changes of the joints tending toward either the atrophic or the hypertrophic type. In 85 persons, or 29 per cent of this group, a specific relationship between the hyperthyroidism and the onset of the abnormality of the joints was found to exist. There was found to be a high incidence of focal infection among those in the latter group.

With the initiation of articular symptoms the disease tends to progress persistently, until typically atrophic changes in the joints are discernible. Instances have been noted in which gross contracture of the joints has occurred. Despite so marked a degree of change clinically, thyroidectomy has proved to be highly efficacious in producing marked resolution. If hyperthyroidism is recognized early enough in the disease, complete return to normal may be anticipated. Failure to recognize the etiologic factors in the production of these changes in the joints and failure to institute proper therapy have been shown to be the cause of chronic progressive polyarthritis in these cases of exophthalmic goiter.

Weljaminow [21] has described the prompt relief obtained in a case of chronic progressive thyrotoxic arthritis following thyroidectomy. In 1922, Deusch [22] reported the case of a woman who had had exophthalmic goiter since the age of 14, but who had declined operation, with the result that the condition had become progressively worse. At the height of the thyrotoxic state, the first articular manifestations had become obvious, and with the lapse of time deformity had increased. Antirheumatic remedies were ineffectual. The patient presented the classic findings of polyarthritis with involvement of all joints of the extremities, particularly those of the hands and fingers. The marked muscular atrophy with the typical appearance of a shiny skin was also noted.

Thiroloix [23] has cited cases undoubtedly analogous to those previously mentioned, in which a progressive polyarticular process was observed, and treatment was directed primarily toward the condition of the joints, with only variable improvement as a consequence. Seven similar cases have been reported by Fink, and further references have been made by Levi, de Rothschild, Poncet,[24] Nathan [25] and others, to the occurrence of so-called endocrine rheumatism of the joints connected with hyperthyroidism.

The experiences reported by these authors in treating such patients before thyroidectomy was performed were similar to my own. However, operation has

21. Weljaminow, quoted by Herzberg.[9]
22. Deusch, G.: Chronic Progressive Polyarthritis Deformans and Basedow's Disease, Klin. Wchnschr. **1**: 2226, 1922.
23. Thiroloix, M. J.: Intensive Iodine Medication in the Treatment of Chronic Rheumatism, Bull. et mém. Soc. méd. d. hôp. de Paris **50**: 1033, 1926.
24. Poncet, quoted by Herzberg.[9]
25. Nathan, quoted by Herzberg.[9]

resulted in rapidly subsiding symptoms and progression toward eventual recovery. The degree of improvement and the length of the convalescent period obviously are dependent on the length of time that the conditions of the joints have existed prior to thyroidectomy. The specific articular manifestations of hyperthyroidism are capsular or periarticular. Failure to recognize the etiologic agent is followed by the development of chronic progressive changes simulating a proliferative type of joint disease and becoming more pronounced as the hyperthyroidism persists.

The connection between thyrotoxicosis and disease of the joints is of marked therapeutic significance. Weljaminow and Curschmann,[26] in their description of the coincidence of exophthalmic goiter and chronic arthritis, have come to believe that in this syndrome there occur trophic disturbances of the joints and bones which correspond to the noncoordinated dystrophic symptoms in the hair, skin, nails and muscles.

In the cases I have studied it has been shown that by thyroidectomy more is to be accomplished in this particular type of case than by all other means. The very facts that therapeutic measures other than this are so utterly ineffectual and that the disease has a marked tendency to progress toward a state of true joint destruction are sufficient evidence for the necessity for the early recognition of such a relationship.

The characteristics of this departure from normal can be shown best by relating the details of one or two typical cases.

REPORT OF CASES

CASE 1.—A man, aged 51, presented himself because of severe pain in both shoulders. Several months before, marked nervousness and excitement had developed. Six weeks after the onset of the initial symptom, during a sixteen day period of rest in bed, severe pain in both shoulders had developed. Several weeks later, the fingers had become stiff and weak. The patient had had difficulty in closing the hands or performing finer movements with them. He had noticed increasing nervousness and weakness, associated with marked trembling of the hands. He perspired freely, and on admission said that he had lost 50 pounds (22.7 Kg.) in weight. There was no history of injury to any of the joints.

On clinical examination he presented the typical findings of severe hyperthyroidism. Examination of the joints showed atrophy about both shoulders and marked restriction of abduction and of internal and external rotation. There was no tenderness on pressure about the upper end of either humerus. Both hands showed moderate periarticular thickening about the metacarpophalangeal and interphalangeal joints. The patient was admitted to the hospital on May 1, 1929, at which time the basal metabolic rate was +30. Despite complete rest in bed and a typical preoperative routine with the administration of compound tincture of iodine, along with the administration of heat in every form, including diathermy to both shoulders and sedatives of every imaginable type, he failed to secure any relief. Following twelve days of hospitalization, thyroidectomy was performed. Pathologic examination showed a marked diffuse hyperplasia of the gland. Within ten days following thyroidectomy, the pain decreased considerably. The patient continued to show marked improvement. Three months after the operation the pain had subsided almost completely, and the restriction of movement in the joints had lessened materially. Within six months after operation he was completely well, so far as pains in the joints were concerned. He had acquired a full range of movement in both shoulders, and the hands were entirely free from pain.

CASE 2.—A woman, aged 50, on admission detailed a typical history of the onset of hyperthyroidism which the clinical findings corroborated. About two months before she came to the Cleveland Clinic, and during the course of the disease, severe pain had developed in the left shoulder without history of trauma. At the beginning the pain had been spasmodic, but later it had become continuous and had extended down the left upper extremity to the hand. The left shoulder had become stiff. The patient also had noticed stiffness in the dorsal and lumbar parts of the spine and in the joints of the left hand, and for a short time prior to admission there had been some discomfort in the right shoulder. Despite the use of all types of sedatives and of all forms of treatment, including rest in bed, the pain had become progressively worse and the restriction of movement more pronounced. The patient noted particular difficulty in the shoulders while she was putting on her coat, and the stiffness in her back was pronounced in the morning when she attempted to bend over. Within twenty-four hours following thyroidectomy the symptoms commenced to abate. Within forty-eight hours she was much improved, and from that time on the symptoms continued to decrease. Six weeks after operation she had reached a relatively comfortable state, although there was still some restriction of movement in the joints of the left hand. There was slight discomfort on vigorous internal and external rotation of the left shoulder, with no demonstrable difficulty in the corresponding joint on the right side. Movement in the spine was perfectly free in all directions. Since that time she has progressed to a complete recovery.

The clinical findings prior to operation were practically identical in the two cases just described. In neither of these instances was there any evidence of focal infection.

Considerable divergence of opinion exists as to the etiology of this condition. It would appear that these abnormalities of the joints are not due to a specific toxin elaborated by the thyroid gland. Whether or not the individual in the presence of hyperthyroidism becomes sensitized to infection, which in a large proportion of instances has been found to be present, is a moot question. It would appear logical to believe that such periarticular changes are the result of trophic disturbances initiated by the hyperactive thyroid gland through the vegetative nervous system.

In conclusion it may be said that divergent manifestations of thyroid dysfunction are productive of articular disturbances that can be looked on as being characteristic of those altered physiologic states. Hyperthyroidism is accompanied by capsular and periarticular changes which, if inadequately treated, lead to an atrophic polyarthritis with characteristic contractures. These changes are highly amenable to well directed surgical measures on the thyroid. Articular manifestations of hypothyroidism are degenerative, are slowly progressive and are readily lessened in severity by the administration of thyroid extract in adequate dosage.

ABSTRACT OF DISCUSSION

DR. HENRY W. MEYERDING, Rochester, Minn.: The fact that in a large group of patients with hyperthyroidism there is a percentage with arthritis, and that there appears to exist a definite relationship between the two, brings to mind that during pregnancy patients with arthritis have considerable relief of symptoms. Why that should be I do not know, unless it is due to thyroid activity. Definite hyperthyroidism in persons with arthritis should be treated. I concur that operation would give, in a large percentage of cases, considerable relief of symptoms. The condition that has interested me more has been hypothyroidism of the myxedematous type; the afflicted patients have cold extremities, coarse hair, and so on. These patients react to thyroid extract and to the general measures that are usually employed in the treatment of arthritis; namely, heat, massage, proper food, elimination, and so on. In studies of the metabolic rates of persons with arthritis, it was found at the clinic that about 85 per cent had fairly normal rates, in about

26. Curschmann, H.: Concerning Severe Disturbances of the Stomach and Affections of the Joints in Basedow's Disease, Deutsche Ztschr. f. Chir. **192**: 13, 1925.

8 per cent the rates were higher than normal, and in about 7 per cent they were lower than normal. Dr. Duncan has shown that in the care of persons with arthritis a lookout must be kept not only for focal infection but also for conditions affecting the thyroid.

DR. RALPH PEMBERTON, Philadelphia: If there is anything known about arthritis it is that its etiology, physiology, pathology and therapeutics must be and are varied. Dr. Duncan has emphasized the significant fact that the condition constitutes a great syndrome with imbalances of many kinds within it, one of them affecting the nervous system. What initiates this imbalance it is difficult to say, but that the thyroid is sometimes involved in it I haven't much doubt. Dr. Duncan has spoken of the low metabolic rate of many arthritic persons. I think that my associates and I during the war were the first to study the basal metabolic rate in arthritic persons and to determine that it is lowered in many of them. This lowering is apparently not due to a difficulty of the combustive processes alone. Such a combustive difficulty may occur at times because hypothyroidism assuredly contributes to that end and may be added to the arthritic syndrome. However, the lowered metabolic rate of persons with arthritis is due, in part at least, to a condition of vasoconstriction in the finer vessels, especially in the muscles, which induces a relative anoxemia or anemia. The consequence of this is a dysfunction of the tissues in which the combustive processes are initiated. I am prepared to believe, however, that a true dysfunction of the thyroid along the line of hyperthyroidism may be engrafted in some elementary phase on arthritis or be otherwise involved with it. There are, indeed, some cases in which a complicating factor of this kind is wholly conceivable. Whether operative procedure is often appropriate for these shocked and harassed individuals, such suggestive experiences as Dr. Duncan relates must determine. In the meantime one can afford to be conservative and to consider operative procedure in those cases only which have been found by long study to be appropriate. I am tempted to refer to some work which bears chiefly on the previous paper but is also germane to Dr. Duncan's remarks. When one considers the vexed question of invasion of tissue with bacteria, one has to bear in mind what has recently been forthcoming in the work of Arnold and his associates at Illinois. They have shown that from the intestinal tract and from the stomach there is apparently often some absorption of bacteria, especially following the ingestion of food. This has been partially corroborated by other workers, and my associates and I have recently observed the same thing, although this statement constitutes only a preliminary report so far as we are concerned. Thus if one puts certain organisms into the large intestine they can be recovered in the pancreas, for example. We have not yet found organisms in the joints, but organisms are certainly carried to many tissues of the body. I think this implies that organisms found in joint tissue may be only invaders to which one may well hesitate to ascribe etiologic significance. Apropos of this problem, vaccines constitute a definite arm of medical therapy. However, in many arthritis clinics of this country, vaccines are rarely required. In Philadelphia we have to hunt to find cases in which they are really needed and I have often difficulty in getting such cases to show to the postgraduate students. Please don't mistake me as thinking that vaccines have no place in this or in certain other diseases. They most assuredly have; but that they are always or even often needed in arthritis is more and more to be doubted.

DR. REGINALD BURBANK, New York: I am sorry that I am unable to give detailed data on work we did from 1924 to 1926 in correlating thyroid disorders, particularly the hyperthyroid type, with arthritic lesions. Dr. Hancher, associated with Dr. John Rogers, referred approximately twenty patients to the arthritis clinic. The majority responded satisfactorily. Two were operated on. Dr. Duncan found the percentage of focal infection high in persons with hyperactive thyroids. I found it high also. In fact, there was either an active focus of infection present or one had recently been removed in practically all of them. There undoubtedly seems to be a relationship between arthritis and thyroid dyscrasia. I believe that the infection is prior to the hyperthyroidism with consequent bacterial invasion of the joints antedating the thyroid hyperactivity. In a series of twelve persons with hyperthyroidism treated at that period I felt that the active primary infective focus gave an initial hyperactive thyroid, whereas long continued infection produced a lag that decreased thyroid functions. I feel that this may indicate why so many of the chronic, degenerative arthritic persons are seen who have an initial thyroid activity followed by a lowered basal metabolic rate. In myxedema and cretinism, as Dr. Hadjopoulos reported some years ago, there is a deficiency of complement with a lowered basic protective mechanism against bacterial infection. I am scarcely justified in discussing this subject because of the comparatively few persons with thyroid disease we treat, as they are usually turned over to the internist to be taken care of from that point of view.

IMMUNITY TO HUMAN AND PASSAGE POLIOMYELITIS VIRUS

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A considerable body of knowledge relating to active immunity to the virus of poliomyelitis has grown up since the condition was first described in 1910.[1] This paper will deal briefly[2] with several aspects of this immunity problem.

In the first place, attention will be given to the immunity produced in monkeys by the subcutaneous or the intradermal injection of specimens of virus passed through many monkeys or derived immediately from fatal cases of human poliomyelitis. A comparison of the quality of the immunity in the two cases will be made according to the resistance against infection and the demonstration of antiviral or neutralizing properties in the blood serums.

A consideration of this problem leads directly to questions of differences or variants of the virus as it exists in epidemics arising in separate years or in places widely removed from one another, and to changes produced in the human virus by monkey passages.

Next, attention will be given to active immunity as it arises, especially in monkeys subjected to inoculation. In this connection reference may be made to the fact, often observed but little commented on, that noninfective doses of the virus, when they are introduced into the central nervous system, tend not to lead to immunity. While one or more clinically ineffective doses of virus injected into the skin or subcutis increase the resistance or actively immunize monkeys, such noninfective injections made intracerebrally or intracisternally leave the inoculated animals essentially unchanged so far as response to more potent or larger doses of virus is concerned.

Finally, observations on attempted active immunization through inoculation of the mucous membranes of the upper respiratory tract will be recorded. Experiments of this sort, on a wider scale, would seem to be called for in view of the common belief that it is by means of a subclinical process of inoculation of the nasal and adjacent mucosa in man that the observed immunity of adult populations is taking place. Besides lower monkeys, these tests should perhaps be made also on higher apes.

From the Laboratories of the Rockefeller Institute for Medical Research.

Read before the Association of American Physicians, Atlantic City, N. J., May 3, 1932.

1. Flexner, Simon, and Lewis, P. A.: Epidemic Poliomyelitis in Monkeys, J. A. M. A. **54**: 45 (Jan. 1) 1910.

2. The complete paper will appear in the Journal of Experimental Medicine.

HUMAN AND MONKEY PASSAGE VIRUS IMMUNITY

There are very few references in the literature which may be taken to indicate infective or antigenic distinctions in the virus of poliomyelitis. Common experience has shown that the virus of American and of European poliomyelitis can be neutralized with human convalescent serums. While specimens of the virus are known to fluctuate in virulence, and the convalescent and other neutralizing serums to vary in antiviral strength, no experimental evidence that these differences represent more than quantitative distinctions has been offered until recently. Burnet and Macnamara [3] drew attention to a variation between virus obtained in an epidemic of poliomyelitis in New South Wales and the standard Rockefeller Institute specimen, and Weyer [4] described quantitative differences in the neutralizing value of convalescent and antiviral horse serum for recent (1931) and monkey passage (Aycock) virus strains.

The 1931 epidemic of poliomyelitis provided many human specimens of the spinal cord and medulla. These were collected at autopsies, placed into 50 per cent chemically pure glycerol, and kept at + 4 C. In due time, monkeys (Macacus rhesus) were inoculated in order to establish the virus as passage strains, and, in addition, a group of five monkeys was given several intradermal injections of the human material, not passed through monkeys, by the method of Aycock and Kagan.[5] Four of these animals showed no symptoms of disease, while the fifth became definitely paralyzed in one leg. Recovery occurred in this animal with residual atrophy and partial paralysis of the leg muscles.

Two sets of experiments were made with these monkeys. Blood was taken from all five to be tested for antiviral power. Two of the four symptomless animals were given seven daily instillations of the Rockefeller Institute monkey passage virus. These monkeys developed paralytic poliomyelitis, to which they succumbed in the same manner and time as did the control animal. The serums of the symptom-free as well as of the paralyzed and recovered monkeys were next tested for antiviral action against a Berkefeld filtrate of the monkey passage virus. No neutralization, in the dilutions employed, took place. These dilutions were such as to develop the antiviral property in serums from monkeys immunized with the passage strain.

Three monkeys of this series still survive and are to be tested for resistance and serum antiviral power against the 1931 virus implanted in monkeys with as few passages as possible.[6]

Monkeys were actively immunized by the intradermal method of inoculation with the first monkey passage of the 1931 virus. The blood serum failed to neutralize the monkey passage strain, and the serum of one monkey of this series, which developed and recovered from an abortive infection, was devoid of antiviral properties for this strain. The converse of these tests was carried out with the 1931 virus in its fifth monkey passage with human convalescent and monkey passage reinforced (hyperimmune) serum. Both proved neutralizing. This result was perhaps predictable in view of the common observation that human convalescent serum is antiviral for recent and remote monkey passage strains. Now that the 1931 virus appears to have become adapted to monkeys, these experiments can be extended so as to provide information bearing on the qualitative and quantitative relationships of the monkey passage virus which goes back, in part, to the 1909 epidemic of poliomyelitis, and the 1931 strain. A comparison will also be possible with the Victorian virus, now passed through a number of monkeys, kindly sent us by Drs. Burnet and Macnamara.

It is not known whether the modified passage virus has a lower infective power for man than has the original human virus. Undoubtedly the effective virus is changed in this respect through adaptation to monkeys, since so many failures occur in this process. No instance of laboratory infection in man has come to our attention. An experiment is under way with the chimpanzee in order to ascertain whether this species, more nearly related biologically to man, responds in an unusual manner to the passage virus. If peculiarities should appear, a corresponding test can be made with the 1931 virus material.[7]

VIRUS-SERUM IMMUNITY

The common method of inducing active immunity in monkeys is by repeated subcutaneous [8] or intradermal injections of virus.[8] The injections are made once or twice a week over a period of several weeks. A rest period of from four to eight weeks is given, after which the tests for immunity are performed. These tests consist of serum neutralization determinations and intracerebral or intracisternal virus injections. It happens, at times, that a serum proves to be antiviral while the animal yielding it develops paralysis. In other words, the degree of immunity is relative. The existence of an immunity is more delicately exhibited by the neutralization than by the severer infection test. Since normal monkey serum is consistently devoid of antiviral action, the neutralization definitely indicates a state of immunity.

Monkeys and human beings who have passed through and recovered from poliomyelitis yield antiviral serums. Convalescent monkey serum is weaker in neutralizing action than convalescent human serum. But the strength of the monkey serum can be increased and brought to a high titer by subsequent subcutaneous virus inoculations. This process is called reinforcement.[9]

Active immunity in the monkey, experimentally inoculated, is therefore a relative state. Even with repeated intradermal injections of virus, occasional monkeys give only low immunity responses. The comparative immunity value of the abortive as compared with the frankly paralytic experimental infection has been little studied. We have compared recently two Macacus rhesus monkeys in which, as a result of the injection of the same virus, one developed merely tremor and ataxia and the other paralysis of the arms and legs from which partial recovery took

3. Burnet, F. M., and Macnamara, Jean: Brit. J. Exper. Path. **12**: 57 (April) 1931.

4. Weyer, E. R.: Proc. Soc. Exper. Biol. & Med. **29**: 289 (Dec.) 1931.

5. Flexner, Simon, and Lewis, P. A.: Experimental Poliomyelitis in Monkeys, J. A. M. A. **54**: 1780 (May 28) 1910. Aycock, W. L., and Kagan, J. R.: J. Immunol. **14**: 85 (Aug.) 1927.

6. Difficulties have been encountered in establishing the 1931 human virus in Macacus rhesus monkeys. It is common experience that a part only of human specimens can be successfully and enduringly implanted in monkeys. The reasons for the refractoriness of the 1931 virus in this respect are not known. Recently we have secured a specimen of virus which in the fifth and sixth passages is effective and, curiously enough, has induced prostrating paralysis in two of three monkeys on the third intradermal inoculation carried out for purposes of active immunization.

7. A female chimpanzee weighing 70 pounds (31.8 Kg.) was given an intracerebral inoculation of a potent Berkefeld filtrate of the monkey passage virus. No symptoms having developed, a second or accelerating injection (Flexner and Lewis [footnote 1]. Flexner, Simon: Science **74**: 520 [Nov. 20] 1931) was given ten days later. This animal has resisted both injections.

8. Flexner and Lewis (footnote 5). Aycock and Kagan (footnote 5). Stewart, F. W., and Rhoads, C. P.: J. Exper. Med. **49**: 959 (June) 1929.

9. Flexner and Lewis (footnote 1). Stewart and Rhoads (footnote 8).

place. These animals were tested subsequently by intracerebral inoculation and serum neutralization. The paralyzed monkey withstood an inoculation to which the slighter (abortive) affected animal succumbed, and the serum of the former possessed higher antiviral power than that of the latter.

Monkeys given several subcutaneous or intradermal injections of virus sometimes develop paralysis instead of immunity. The proportion of those becoming paralyzed has varied with different experimenters.[8] There has been too little consistency in the various tests to make comparison accurate. The strain or sample of virus undoubtedly plays a part, some being more virulent than others. Dosage also plays a part. Because of this disparity, immunity has been sought by means of fewer injections and the combined employment of immune serum and virus. A substitution of one or few larger injections of virus or of virus and serum has been made for the repeated injections.

Undoubtedly active immunity can be produced in this manner. A closer study of the process is called for. The experiments so far reported relate to few animals [10] or are so varied as to be inconclusive.[11] The fact remains, however, that mixtures of virus and serum, probably underneutralized,[12] and separately and simultaneously injected virus and serum, give rise to some degree of active immunity. A question that the inadequate experiments have not answered is whether, when virus and serum are simultaneously injected, symptoms of infection ever arise. We have made one separate injection of virus intradermally and of serum subcutaneously in fourteen Macacus rhesus monkeys without eliciting symptomatic effects in any. From 0.5 to 1.0 Gm. of potent monkey passage virus and varying quantities of reinforced monkey or human convalescent serum were given on the same day. That active immunity develops under these conditions can be shown by neutralization and infection tests. The grade of immunity thus produced remains to be determined, as well as the optimum conditions under which it arises without, at the same time, being attended by abortive or paralytic symptoms of disease.

We are now better informed as to the qualitative and quantitative nature of active immunity produced in monkeys. It is not sufficient merely to test the animals with virus on the basis of "virulence." Account should also be taken of the effect of the strain; that is, whether homologous or heterologous. The results supposed to have been attained may well be changed by this circumstance. In this connection, reference may be made to the report of Stewart and Rhoads [8] in which the actively immunized monkeys responded differently according as the Rockefeller Institute, M. A. or Aycock strains of virus were employed for the immunizing and for the test inoculations.

No convincing evidence exists that the virus of poliomyelitis is qualitatively modified by chemical or physical agents. All the effects ascribed to these agents may be due to quantitative changes only. The viruses, apparently weakened by chemicals and heat or drying, when still effective, regain their lost potency quickly on monkey passage. A state of prolonged but not permanent depression sometimes occurs, which is not to be explained in this way, and has been related to the wave movements of epidemic poliomyelitis.[13] The latter phenomenon calls for renewed study in the light of fuller knowledge of the biology of the virus.

10. Stewart and Rhoads (footnote 8).
11. Rhoads, C. P.: J. Exper. Med. **51**: 1 (Jan.) 1930; **53**: 115 (Jan.) 1931.
12. Brodie, Maurice, and Goldbloom, Alton: J. Exper. Med. **53**: 885 (June) 1931.

NASAL INSTILLATION AND IMMUNITY

Reference should be made to the effect of nasal instillation of the virus in monkeys. Paralytic poliomyelitis is readily induced in this manner by from three to six or seven daily instillations. The number of refractory animals is not large. Several such resistant animals were assembled and subjected to repeated nasal instillations with intervals of one or more weeks between the courses. The refractory monkeys, which resisted not only one but several courses of instillation, were tested for active immunity by (*a*) serum neutralization and (*b*) intracerebral inoculation. No indication of an immunity was secured.

On the other hand, one nasally instilled monkey which developed fleeting, abortive, nonparalytic symptoms, from a course of instillations, yielded an antiviral serum and resisted the intracerebral injection.

These experiments should be carried further and on a larger scale in order to determine whether the monkey, naturally not affected by epidemic poliomyelitis but experimentally susceptible, is susceptible of being immunized, as man is supposed to be, by way of the mucous membranes of the upper respiratory tract, in the absence of the appearance of all symptoms of disease.

SUMMARY

1. The passage of the virus of poliomyelitis through monkeys intensifies its infectivity for these animals and modifies its specific immunologic reactions. The changes undergone are quantitative and probably also qualitative in nature. The modified virus preserves its immunizing power, in part at least, against recent strains of the human virus. Immune serums prepared with human and with monkey passage strains of virus exhibit quantitative differences in cross-neutralizing tests.

2. Virus-serum immunity can be produced in monkeys by the separate, simultaneous injection of one or more doses of virus and immune serum. The dangers of active poliomyelitic symptoms arising in the inoculated animals seem lessened by the combined treatment. The optimum manner of producing virus-serum immunity has still to be determined.

3. Monkeys that have proved wholly refractory to nasal instillations of the virus have been shown to be devoid of serum antiviral activity and to exhibit average susceptibility to intracerebral inoculation of potent virus.

Sixty-Sixth Street and York Avenue.

13. Flexner, Simon; Clark, P. F., and Amoss, H. L.: J. Exper. Med. **19**: 195, 1914. Levaditi, C., and Hornus, G.: Bull. Acad. de méd., Paris **107**: 580 (April 26) 1932.

Robert Koch.—I think it may surely be said without fear of dissent that in few, if in any, departments of medicine has there occurred during fifty years so complete an upturn of thought and practice as in that of tuberculosis. The credit for this is primarily due to Koch. To him we owe it that knowledge has replaced ignorance, that doubt and helplessness have largely disappeared, that preventive measures and therapeutic procedure are now inspired and controlled by ascertained fact, that the morbidity of tuberculosis has lessened, and that in all progressive countries the mortality from tuberculosis is tumbling rapidly. Robert Koch laid the solid foundations on which the rest has been built, and to him be the glory.—Philip, Sir Robert: Koch's Discovery of the Tubercle Bacillus, *British Medical Journal* **2**:1 (July 2) 1932.

EFFECT OF SPLENECTOMY IN FELTY'S SYNDROME

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In 1924, Felty[1] reported from the Johns Hopkins Hospital five examples of an unusual syndrome, the important features of which were chronic arthritis, splenomegaly and leukopenia. He summarized the common features of the five cases as follows:

> The syndrome occurred in persons of middle age, all of whom were undernourished and gave a history of marked loss of weight since the onset of the symptoms. The arthritic process is distinctly chronic, the average duration being four and a half years. In striking contrast to the prolonged course of the disease and the generalized distribution of the pain, which is the presenting symptom of all the patients, the objective finding, both by physical examination and roentgenographic study, is neither widespread nor indicative of a very damaging or destructive process. Indeed, one is rather impressed by the relatively benign nature of the involvement as compared with the typically chronic deforming arthritis of equal duration and extent.
>
> In every case, the spleen was definitely enlarged, was firm and not tender, and none of the patients had symptoms referable to the splenic tumor. In every instance there was noted a yellowish-brown pigmentation to the skin, which in four cases was confined to the exposed surfaces. There was a slight secondary anemia, but the striking leukopenia was a distinctive feature in every case. The urine was normal, except for the one case in which urobilin was found to be present. None of the patients showed any evidence of lues, either serologically or on general examination. Three patients were afebrile during their hospital stay, two ran a low fever which subsided after one or two weeks.

Felty believed that there are but two likely possibilities regarding the explanation of this unusual clinical syndrome: 1. The several features may be manifestations of one pathologic process, the counterpart in the adult of the syndrome seen in young children, known as Still's[2] disease. The leukocyte count in Still's disease is not characteristic and, if altered at all, is more commonly increased. 2. The syndrome may be merely a confusion of two separate clinical entities, occurring coincidentally in the same individual. Taken separately, without regard for the arthritis, the remaining symptoms are typical of early Banti's disease. Joint changes, however, are not a part of Banti's syndrome, and Eppinger, in his exhaustive discussion of this disease, fails to mention any observations of its occurrence. One would need to assume, then, that the arthritis is quite independent of the rest of the complex.

Felty concluded that one is more or less forced to the conclusion that this syndrome is a distinct clinical entity of which the outstanding symptoms are those related to the joints, and the outstanding signs are the enlarged spleen and the blood picture.

In this communication we would prefer to leave this question *sub judice* and merely record the markedly beneficial effects of splenectomy in a patient who presented features similar to those described by Felty.

REPORT OF CASE

A white woman, aged 50, referred to us by Dr. James Ennis of Waynesboro, Pa., was admitted to the Union Memorial Hospital, Aug. 24, 1931, complaining at that time of arthritis. Her family history was irrelevant and her past history indicated general good health. She was born and had lived continuously in southern Pennsylvania. She had been married for thirty years, and her husband and six children were living and well. Her highest weight was 176 pounds (80 Kg.) fifteen years before; five years before she averaged about 156 pounds (71 Kg.) and her weight on admission was 99 pounds (45 Kg.).

Other details of her past history include frequent sore throats for many years, for which the tonsils and adenoids had been removed three years before. There have been attacks of hay fever and asthma in August for the past four or five years, with the exception of August, 1930.

The present illness dated from five years past, when the patient began to notice circumscribed attacks of numbness and spasm of the arms, which produced a position of flexion and, lasting for two or three days, would be followed by free intervals of a week or more. For two years these attacks involved singly the different extremities, and then aching pains began in various joints associated with swelling, redness and tenderness. After several days this would subside, but after a few such attacks the affected joint would become more or less fixed, with subsidence of pain except on initial movement. This type of attack continued for two years, by which time the involved joints had become fixed and reached the painless state now present. During the past year subcutaneous nodules appeared over the body, particularly around the joints and over the bony prominences. These nodules were at first dusky red and painful but had since become smaller and painless.

During the past year, the patient had been troubled by belching and had had tenderness and pain in the upper abdominal region at intervals of two weeks, which had gradually localized in the upper left quadrant. Her appetite had remained good, and she had had no fever. She had gradually lost weight, become weaker and had had difficulty in getting about. She was not confined to her bed but remained in the house, able to walk for only ten or fifteen minutes.

Physical examination showed her to be poorly nourished and obviously anemic. The knuckles were swollen and deformed, and the first phalanges could not be extended. The knees were swollen, painful on motion, but not ankylosed. The feet and ankles were not affected.

There was a large painless nodule under the skin of the left arm near the elbow. There were tender, red nodules at the bases of both first toes, and along the dorsum of the toes were hard movable nodules.

All teeth had been removed; no general lymph glandular enlargement was noted.

On examination of the abdomen, a prominence could be seen on the left of the umbilicus, which on palpation was more pointed medially than is usually the case with an enlarged spleen but which blended with a mass occupying the usual position of an enlarged spleen. This mass was smooth, moderately movable, and neither tender nor painful. The liver was palpated 5 cm. below the costal margin.

The remainder of the physical examination was negative. From August 24 to September 15 she was fairly comfortable except for some pain in the upper left quadrant before and after meals. Her temperature was irregularly elevated to about 100 F. every day.

Laboratory examination of the urine was negative except for the presence of urobilin. One specimen of the stool was tarry black; it was usually semisolid. There was an occasional positive benzidine test. No red blood cells were present. Gastric analysis showed: free acid, none; combined, 4; total acidity, 4; no lactic acid. The basal metabolic rate, August 25, was +27; September 12, +12.

Roentgen studies of the right hand and wrist and of the left knee showed infectious arthritis of the knee joint and wrist. Several punched-out areas in the carpal bones were suggestive of gout. Fluoroscopy showed no evidence of a lesion in the stomach or the duodenum.

A roentgenogram showed a slightly irregular duodenal cap suggesting adhesions. There was no evidence of an ulcer or other lesion in the stomach. The five hour film disclosed that motility was normal, the stomach was empty, and barium was well distributed throughout the colon, which appeared very

1. Felty, A. R.: Chronic Arthritis in the Adult, Associated with Splenomegaly and Leukopenia, Bull. Johns Hopkins Hosp. **35**: 16 (Jan.) 1924.
2. Still, G. F., in Allbutt's System of Medicine **4**: 102, 1897.

spastic. No normal haustrations were noted and the picture suggested a spastic mucous colitis. The twenty-four hour film showed that the meal lay in the descending colon, sigmoid and rectum. The appendix was not visualized.

The impression was that there were questionable periduodenal adhesions and that the large intestine was spastic.

A Wassermann test of the blood was negative. Blood culture yielded no growth. Chemical examination of the blood showed: nonprotein nitrogen, 25.5 mg., sugar 1.5 mg., uric acid 1.5 mg. The blood count showed red blood cells, 3,450,000; hemoglobin, 91 per cent; white blood cells, 800; platelets, 50,000; polymorphonuclears, 14 per cent, and lymphocytes, 86 per cent.

Blood Examinations Before and After Operation

Date	Red Blood Cells	White Blood Cells	Hemoglobin, per Cent	Polymorphonuclears, per Cent	Erythrocytes, per Cent	Basophils, per Cent	Lymphocytes, per Cent	Monocytes, per Cent	Platelets
8/25/31	3,450,000	800	91	14	..	..	86	..	.....
8/26/31	.....	.....	..	7	1	2	87	3	50,000
8/27/31	.....	1,280	..	..	..	..	..	..	.....
9/ 1/31	4,430,000	1,600	67	17	1	..	69	13	.....
9/ 5/31	4,310,000	1,040	67	..	..	..	..	..	.....
9/14/31	3,590,000	640	57	..	..	..	..	..	120,000
9/15/31	Splenectomy—Transfusion								
9/17/31	.....	4,850	..	..	..	..	..	..	110,000
9/18/31	3,100,000	4,600	65	..	..	..	..	..	.....
9/19/31	.....	4,700	..	..	..	..	..	..	120,000
9/21/31	.....	4,400	..	..	..	..	..	..	140,000
9/30/31	.....	3,450	..	..	..	..	..	..	130,000
10/ 7/31	4,940,000	3,840	78	..	..	..	..	..	200,000
10/16/31	4,100,000	4,700	85	..	..	..	..	..	100,000

An impression of Felty's syndrome was given. Although splenectomy had never been performed for this condition, it was felt that the marked splenomegaly and leukopenia were in themselves sufficient indication to warrant the operation regardless of a possible favorable effect on the arthritis.

The operation was performed, September 15, under "avertin" and nitrous oxide anesthesia. The spleen was about three times its normal size and mottled in appearance, showing small

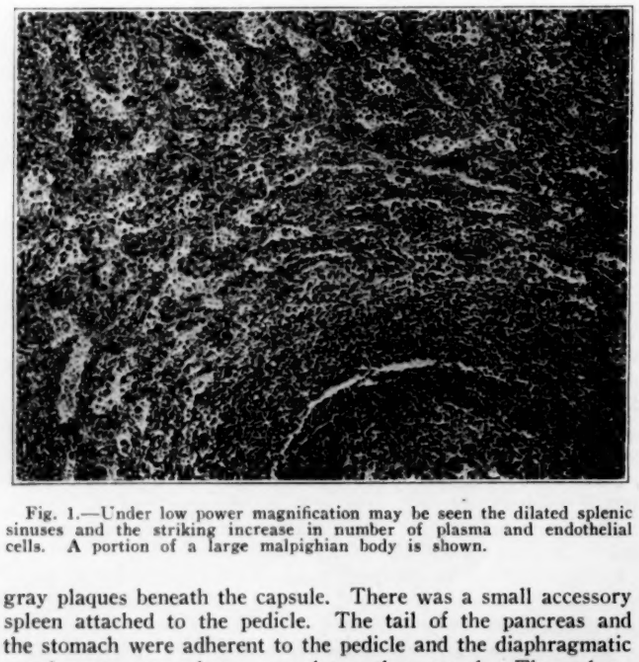

Fig. 1.—Under low power magnification may be seen the dilated splenic sinuses and the striking increase in number of plasma and endothelial cells. A portion of a large malpighian body is shown.

gray plaques beneath the capsule. There was a small accessory spleen attached to the pedicle. The tail of the pancreas and the stomach were adherent to the pedicle and the diaphragmatic attachments somewhat more dense than usual. The spleen, however, could be mobilized and removed without difficulty, according to the usual technic. A small wedge of liver tissue was excised from the free border. A transfusion of 500 cc. of citrated blood was given and the patient left the operating room in good condition.

The postoperative course was uneventful. There was a slight increase in the daily temperature rise for one week, after which the maximum rise was to 99 F. When the patient was up in a chair on the fourteenth day she stated that her joints were definitely not so painful. At the end of three weeks there was a distinct improvement, and she had better use of her limbs than she had had for several years. Light exercise of her hands with rubber sponges was started.

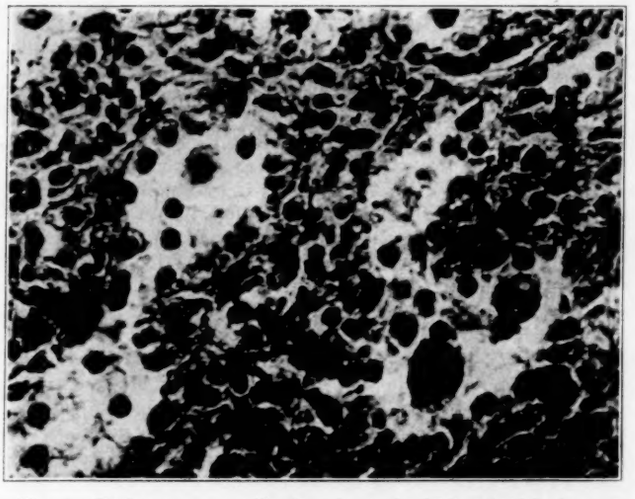

Fig. 2.—High power magnification shows the high cuboidal character of the endothelial cells lining the sinuses, and several large phagocytes. This illustration fails sufficiently to emphasize the increase of plasma cells seen elsewhere in the splenic pulp.

When discharged from the hospital five weeks after operation, the patient could straighten out her fingers, could use her hands comfortably to care for herself and could walk with comfort on the affected knee. Her hands were still weak, owing to atrophy of the small muscles.

The blood examinations before and after operation are given in the accompanying table.

The spleen weighed 525 Gm. and measured 18 by 12 by 7 cm. There was nothing unusual about the gross appearance other than the elongated lower pole. Microscopic sections were examined by Dr. Arnold R. Rich. The malpighian bodies were very large, with germinal centers in proportion. The sinuses were unusually dilated and in the pulp the spaces between the sinuses were thicker than normal, with decreased numbers of cells, and were occupied by an eosin staining material. The latter was not stained by van Gieson's connective tissue stain (fig. 1).

The endothelial cells lining the sinuses were high cuboidal. Larger cells exhibiting red blood cell phagocytosis were plentiful in the sinuses. In other places the pulp contained many cells of different types but especially great numbers of what appeared to be large plasma cells (fig. 2).

Examination of the liver revealed early fatty changes seen in the central zone and moderate round cell infiltration along the portal vein radicles, limited to the periphery of the lobule, where there was a very slight increase in fibrous tissue. The specimen had been removed from the free edge of the liver, where such microscopic pictures are not uncommon.

Culture of the spleen did not yield any growth during five days.

In January, 1932, four months after the operation, the patient's physician wrote that she continued much improved. The arthritis is much better; she is stronger and has had no fever. The red blood cell count is normal and the white blood cell count averages between 10,000 and 12,000.

SUMMARY

Splenectomy was performed on a patient who presented all features of the unusual clinical syndrome described by Felty: arthritis, splenomegaly and leukopenia. Gastric achlorhydria was also present. Microscopic examination of the spleen showed a great

hyperplasia of the endothelial cells lining dilated sinuses, and increased numbers of plasma cells in the pulp spaces. A marked improvement in the arthritis and blood picture has continued for five months after operation.

1201 North Calvert Street—1115 St. Paul Street.

THE LUNGS OF CHILDREN WITH ASCARIS

A ROENTGENOLOGIC STUDY

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At the present time it is well known that the development of Ascaris lumbricoides does not occur directly after the embryonate forms are ingested. After the eggs are swallowed, the larvae escape and penetrate the intestinal mucosa, gain access to the blood stream and are carried through the liver and heart into the lungs, where they act as emboli in the capillaries and whence they escape into the alveoli. From the alveoli they migrate into the bronchi, trachea, larynx and esophagus. They pass through the stomach into the small intestine, where they develop into adult worms.

Stewart [1] first demonstrated the presence of larvae of Ascaris suis in the liver and lungs of rats and mice following the feeding of these experimental animals with ripe eggs. Ransom and Foster [2] confirmed Stewart's observations and extended their experiments until they were able to show that, following the ingestion of ripe eggs of pig ascaris, larvae could be found in the liver and lungs of guinea-pigs, rabbits, goats and sheep. They also recovered from the intestines of sheep and goats partially grown ascarids, showing that after the larvae made the circuit through the blood stream and lungs they returned to the intestinal tract and had begun to develop to maturity.

Various pathologic lesions in the lungs of animals have been demonstrated following the feeding of ripe pig ascaris eggs. Schwartz has shown that pneumonia and various respiratory symptoms can be produced experimentally almost constantly in young pigs. Workers from time to time have suggested that in man various pathologic conditions might arise as a result of the migration of ascaris larvae through the lungs. As early as 1888, experimental feedings of man with ascaris eggs were attempted to determine the course of infection. Very few instances of this are reported in the literature. The most striking experiment of this kind is that of Koino,[3] who fed 500 mature pig ascaris eggs to a healthy man and noted that nine days later there was a rise in temperature, chill, headache, cough, pain in the chest, dyspnea, and rapid respiration. No objective physical signs were found except that on the second day of the illness a few dry and moist râles were heard over the chest. The symptoms were present for about eight days and then completely disappeared. Fifty days after the test feeding in this case, no adult worms were recovered following anthelmintic treatment. Koino himself then took approximately 2,000 mature human ascaris eggs. Six days later there was an increase in temperature, chills, headache, general malaise, increase in respiratory rate and a productive cough. Ascaris larvae were found in the sputum, as many as 178 being found in one day. For six days, larvae were present in the sputum. Blood was present in the sputum on several occasions. About two days after the onset, dulness was present over various parts of the chest, and crackling and sibilant râles were present. The physical signs shifted from day to day but became more marked as the illness progressed. About eight days after the onset, the symptoms and signs began to disappear and complete recovery occurred. Fifty days after the ingestion of the mature eggs, 667 ascarids were recovered following anthelmintic treatment. These experiments show that during the stage of migration of ascaris larvae definite pulmonary involvement occurs.

In Koino's experiments, relatively large numbers of mature eggs were swallowed at one time. Under ordinary environmental conditions in ascaris areas it is improbable that such large numbers of eggs would be ingested at one time. It is more likely that very small numbers of eggs are taken in repeatedly, with the result that very few instances occur in which severe acute pulmonary manifestations are produced. For this reason, in patients with ascaris significant physical signs in the lungs are seldom found. In a recent paper [4] the observations in a clinical study of ascariasis in children were reported. In that study no significant physical signs were present in the lungs.

It is possible, however, that the repeated migration of ascaris larvae through the lungs produce pathologic lesions which could be determined by roentgen examination. It was for this reason that the present study was undertaken. In a clinical study of ascaris infestation in children by Scott,[5] a small number of roentgen examinations were made. He did not include a control group in his investigation.

PLAN OF STUDY

The study was conducted in a locality in East Tennessee in which it was known that ascaris infestation was prevalent. In the county in which this work was done, 52.2 per cent of 1,100 specimens of feces, approximately 85 per cent of which were obtained from rural preschool and school children, showed the presence of ascaris eggs. In this area it is quite probable that children acquire ascaris infestation at an early age and they are repeatedly infected over a long period of time. For purposes of this investigation it was necessary to study patients who had ascaris without hookworm infestation and who were, as far as it could be determined, free from conditions affecting the lungs. For this reason an attempt was made to study patients who were free from tuberculosis.

In carrying out this study, those children who had ascaris eggs in the feces were given an intracutaneous (Mantoux) tuberculin test with standardized old

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Drs. W. J. Abel, W. C. Williams and Howard C. Robertson assisted in this study.

From the Department of Preventive Medicine and Public Health and the Department of Surgery of Vanderbilt University School of Medicine and the Tennessee State Department of Public Health.

1. Stewart, F. H.: On the Development of Ascaris Lumbricoides Lin. and Ascaris Suilla Duj. in the Rat and Mouse, Parasitology **9**: 213 (Feb.) 1917.

2. Ransom, B. H., and Foster, W. D.: Recent Discoveries Concerning the Life History of Ascaris lumbricoides, J. Parasitol. **5**: 93 (March) 1919.

3. Koino, S.: Experimental Infections on Human Body with Ascarides, Japan M. World **2**: 317 (Nov.) 1922.

4. Keller, A. E.; Casparis, Horton and Leathers, W. S.: A Clinical Study of Ascariasis, J. A. M. A. **97**: 302-306 (Aug. 1) 1931.

5. Scott, C. W.: Pulmonary Findings in a Clinical Study of Ascaris Infestation in Children, Virginia M. Monthly **57**: 34 (April) 1930.

tuberculin. All of them were given 0.01 mg. of old tuberculin for the first test and in most of these with no response the test was repeated with 0.1 mg. of old tuberculin.

In this study no use was made of children as controls who lived in a district in which it was known that ascaris infection was frequent, because in such a district even though a child did not have ascaris eggs in the stools at the time the examination was made it was at least probable that previous infection had been present. For this reason it was decided to obtain controls from a region where the prevalence of ascaris was low. The control series was obtained from a children's institution in which the probability of ascaris infection was very slight.

For this study 120 patients were examined. They were divided into two groups as shown in table 1.

Group 1 would contain the children in whose lungs evidence of migration of ascaris larvae might be demonstrated. All children in group 2 were free from intestinal parasites and they showed negative response to both 0.01 mg. and 0.1 mg. of tuberculin. The ages of all children studied varied from 3 to 15 years, with a majority under 10 years of age.

The average intensity of infestation of the patients studied in group 1 was 28,700 eggs per gram of feces, representing an infestation of approximately 28 adult ascarids. This is light infestation; but as the intensity of ascaris infestation fluctuates in areas of high prevalence, it is probable that this does not represent the number of larvae which from time to time had passed through the lungs. The majority of these children knew that they had harbored ascaris for one year or longer and in all probability they had been infected repeatedly.

All roentgen examinations of the lungs were made with a portable x-ray unit. The portable x-ray machine and equipment that is used by the clinicians of the Tennessee State Department of Health in conducting the tuberculosis clinics was used for this study. In spite of the fact that this unit was energized only by the ordinary current available in rural communities, the majority of the films obtained were of sufficient uniformity and quality to be of use in this study. The cases reported are those in which the films were satisfactory.

TABLE 1.—*Division of Groups*

Group	No. of Children in Group
1. Children with ascaris and a negative tuberculin test....	80
2. Children without ascaris and a negative tuberculin test	40

OBSERVATIONS

The following conditions, when present on roentgen examination, are usually considered as indicative of old or recent lesions in the lungs: pleural thickening, diaphragmatic adhesions, widening of the superior mediastinum, enlargement and increased density of the hilus shadows, calcification of either hilus or parenchyma, parenchymal infiltration, and increase in the bronchovascular shadows. None of the patients studied showed evidence of pleural effusion or pulmonary consolidation. Diaphragmatic adhesions and pleurisy were present in a few instances in the two groups, but there were no significant differences between the groups. Table 2 shows an analysis of the important observations in the two groups.

Hilar and Parenchymal Calcification.—In the ascaris group with negative tuberculin tests, calcification of the hilar lymph nodes was not present in a single instance. In the control group with negative tuberculin tests, 20 per cent showed calcified areas. This was probably due to the fact that in this group a few of the children had healed tuberculous lesions and had rid themselves entirely of the tubercle bacilli.

Hilar Enlargement.—The changes noted in the hilar areas in all films were divided into two groups; namely, (1) slight to moderate increase, (2) marked increase.

TABLE 2.—*Per Cent of Total Number Showing Changes on Roentgen Examination*

	Ascaris Positive; No Reaction to Tuberculin	Ascaris Negative; No Reaction to Tuberculin
Number of individuals in each group.....	80	40
Changes noted on roentgen examination		
Calcification (hilar or parenchymal).....	0.0%	20.0%
Hilar changes		
(*a*) Slight to moderate increase.....	36.2%	17.5%
(*b*) Marked increase	16.2%	5.0%
Bronchovascular changes		
(*a*) Slight to moderate increase.....	36.2%	17.5%
(*b*) Marked increase	26.2%	5.0%

The changes in the group showing slight to moderate increase in the hilar shadow includes those films in which it was difficult to determine whether or not there was any deviation from the normal. In those showing marked increase in the shadows in this region, the changes were definite and are considered as being significant.

In the patients with ascaris and a negative tuberculin test, 36.2 per cent showed slight to moderate increase in the hilar shadow and 16.2 per cent showed a marked increase in these areas. In the control group with negative tuberculin test, 17.5 and 5.0 per cent had slight to moderate increase and marked increase, respectively. In some of the films of ascaris patients, increase in the superior mediastinal shadow was seen. From these data it is seen that marked enlargement of the hilus in the ascaris positive group was noted more frequently than in the control group.

Bronchovascular Changes.—The observations as regards the changes in the bronchovascular markings were divided into two groups, as in the case of the hilar changes. It is known that infections of the upper respiratory tract and nonspecific infections of the lungs may produce lesions which, when roentgenographed, may appear as increased bronchovascular markings throughout the lungs. In a previous study[4] it was shown that in children with ascariasis a history of infections of the respiratory tract was not obtained in any greater number than in the control group studied in that connection. For this reason it is assumed that infections of the respiratory tract had occurred to the same extent in the two groups.

In the ascaris group with negative tuberculin tests, 36.2 and 26.2 per cent had a slight to moderate increase and marked increase, respectively, in the bronchovascular markings. In the control group with negative tuberculin tests, 10 and 5 per cent had slight to moderate and marked increase, respectively, in the bronchovascular markings.

It can be seen from this analysis that there are differences which may be significant in the ascaris

and control groups. In the ascaris group with negative tuberculin tests and the control group with negative tuberculin tests, the differences in the numbers showing marked increase in the bronchovascular markings should be noted. It is known that varying degrees of intensity of the bronchovascular markings are found in normal children. This fact was carefully considered in examining the films, and only in those instances in which there was a definite increase present was it considered as such.

No correlation between the worm burden of the children with ascaris and the increase in bronchovascular markings could be made out. It was not possible to demonstrate any relationship between the length of time during which infestation had been present and the increase in bronchovascular markings. The frequency of infection is probably more important in producing these changes than the intensity of infestation at the time of examination. Figures 1 and 2 illustrate the changes that were noted. Figure 2 shows a child without ascaris and a positive tuberculin test and a child with ascaris and a negative tuberculin test. It is included to show the similarity between the childhood type of hilar tuberculosis and those changes noted in the lungs of children with ascaris and negative tuberculin reactions.

SUMMARY

1. Roentgen examinations were made of eighty children with ascaris and negative tuberculin tests and a control group of forty children without ascaris and with a negative tuberculin test.

2. No significant differences in either diaphragmatic or pleural changes could be demonstrated in either group.

3. Calcification in the region of the hilus or in the parenchyma of the lungs was not seen in any of the patients with ascaris who had negative tuberculin tests. In the ascaris-negative group with negative tuberculin tests, 20 per cent had calcification. This was probably due to old healed lesions.

4. Marked increase in the hilar area was noted in 16.2 per cent of the patients with ascaris and negative tuberculin tests. In the ascaris-negative group with negative tuberculin tests, marked increase was noted in only 5 per cent of the films.

5. In the ascaris group with negative tuberculin tests, 26.2 per cent had marked increase in the bronchovascular markings. In the ascaris-negative, tuberculin-negative control group, 5 per cent had marked increase in the bronchovascular shadows.

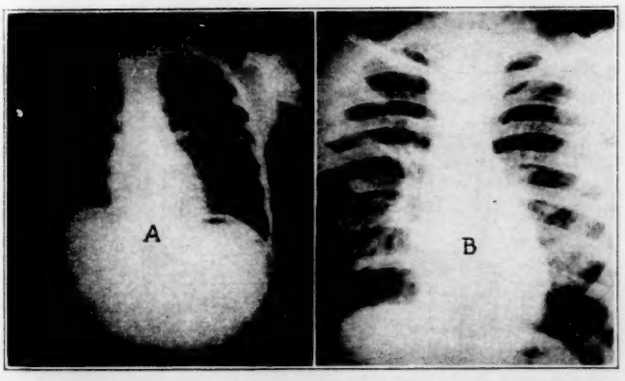

Fig. 1.—Appearance of chest: *A*, in child with negative tuberculin test and ascaris negative; *B*, in child with negative tuberculin test and ascaris positive.

COMMENT

It can be seen from this analysis that certain roentgen changes may occur in the lungs of children harboring Ascaris lumbricoides. The increase both in the hilar shadows and in the bronchovascular markings in children infested with ascaris suggests either that the migrating ascaris larvae cause inflammatory changes in the lungs or that, as a result of this migration, micro-organisms invade the tissues and cause inflammatory changes. The end-results of these processes are the changes noted.

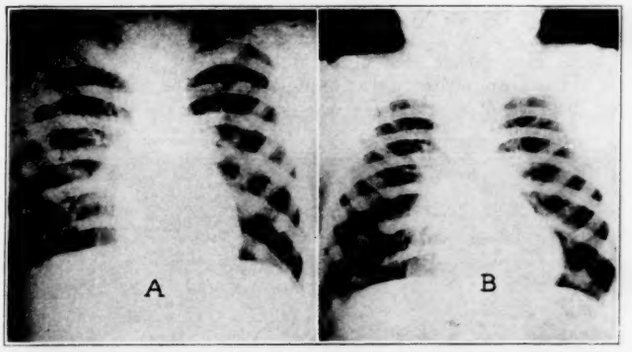

Fig. 2.—Appearance of chest: *A*, in child with positive tuberculin test and ascaris negative; *B*, in child with negative tuberculin test and ascaris positive.

The changes seen in the children with ascaris and negative tuberculin tests resemble those seen in the childhood type of hilar tuberculosis except that no calcification could be demonstrated in the ascaris group. These changes may be confused with those seen in tuberculosis in children, and the tuberculin test should therefore be employed in making an accurate diagnosis.

CONCLUSIONS

While it is not possible to draw definite conclusions, these observations suggest that in children who are infested with Ascaris lumbricoides and who show no response to tuberculin tests the widening in the hilar areas with increase in the bronchovascular markings are possibly due to the repeated migration of ascaris larvae through the lungs. They may occur either as a result of the damage done by the larvae themselves or as the result of infection by micro-organisms which invade the pulmonary tissues at the time the larvae escape from the blood vessels into the alveoli. The changes seen on roentgen examination, which have been attributed to the migration of ascaris larvae, are similar to those seen in the childhood type of hilar tuberculosis and may also resemble the changes which occur following repeated nonspecific infections of the lungs.

The Hyperadrenal Make-Up.—In the hyperactive adrenal individuals we see, as before indicated, all the effects of sympathetic overstimulation. This hyperactivity, producing increase in pulse rate, heightened temperature, increase of blood sugar, intense psychomotor activity and a supremely intense individual, is sometimes with extreme difficulty only, differentiated from a hyperthyroid state. In both conditions do we have an increase in basal metabolism, and in both also frequently a tendency to exophthalmos. However, the hyperadrenal state is usually accompanied by heightened blood pressure, whereas the overactive thyroid state is the antithesis in this regard except when accompanied by hyperadrenal conditions. The hyperadrenal condition also produces no such hyperhidrosis as does the hyperthyroid.—Timme, Walter: Lectures on Endocrinology, ed. 2, New York, Paul B. Hoeber, Inc., 1932, p. 97.

Clinical Notes, Suggestions and New Instruments

CONGENITAL ABSENCE OF SPLEEN AND LEFT KIDNEY

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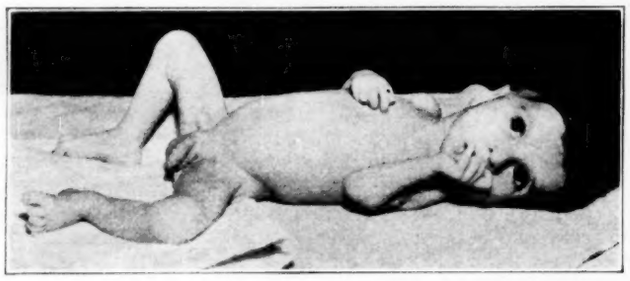
Congenital absence of the spleen and left kidney is an extremely rare anomaly. While cases of congenital absence of the spleen [1] alone or of one kidney alone have been reported, no report has been found of the absence of both organs. Therefore, this case is reported.

REPORT OF CASE

History.—H. L., a boy, aged 8 months, was presented because of failure to gain weight. The mother was 29 years of age. Her father died of carcinoma of the pancreas. The rest of the family history was unimportant. The patient's father was 30 years of age. There was one sister, aged 4 years, who



Infant on admission: relatively large head, long trunk and large genitalia.

was normal. The patient was a full term infant of a normal delivery after an uneventful pregnancy. The birth weight was 7 pounds (3,175 Gm.) and the infant was considered normal. He was breast fed for six months, but, after six weeks, required supplementary feedings. He sat alone at seven months. The first tooth erupted at 7 months. The only illness was bronchitis without fever at 7 months. The maximum weight was 9 pounds (4,082 Gm.) at 7 months. The infant had a good appetite but would never take over 4 ounces at a feeding. The bowels were normal.

Examination.—The child was poorly developed and poorly nourished, weighed 8 pounds 5 ounces (3,770 Gm.) and was 22½ inches (57 cm.) in length. He appeared bright but was unable to hold his head up or sit alone (the mother stated that the baby was able to do both before the recent bronchitis). The skin was loose and dry, especially over the extremities. The muscles were flabby. The head was large (16¼ inches, or 41 cm.) and the face full in comparison with the rest of the body. The anterior fontanel measured 1½ by 2 inches (3.8 by 5 cm.). The posterior fontanel was closed. There were two lower central deciduous incisors. The chest circumference measured 13 inches (33 cm.). The abdomen was 14¼ inches (36 cm.) in circumference and slightly protuberant. Outlines of the intestine could occasionally be seen. The trunk was rather long. The genitalia were comparatively large.

The erythrocyte count was 4,050,000, hemoglobin 65 per cent (Dare) and leukocytes 12,400, with a differential of polymorphonuclears 50 per cent, small lymphocytes 22.5 per cent, large lymphocytes 18 per cent, large mononuclears 2.5 per cent, transitionals 2.5 per cent, eosinophils 4 per cent and basophils 0.5 per cent. The Wassermann and microprecipitation tests for syphilis were negative. Urinalysis revealed a specific gravity of 1.006, albumin 2 +, no sugar, acetone or diacetic acid, or formed elements. The stools were normal in appearance and on microscopic examination. The Mantoux tuberculin test (0.1 mg.) was negative. Roentgenograms of the bones showed small delicate bones for an 8 months old infant and there were no carpal centers. A second blood count showed hemoglobin 70 per cent, erythrocytes 4,190,000 and leukocytes 14,200, of which there were polymorphonuclears 53.5 per cent, small lymphocytes 30.5 per cent, large lymphocytes 7.5 per cent, large mononuclears 3 per cent, transitionals 0.5 per cent, eosinophils 4 per cent, and myelocytes 1 per cent. The serum calcium was 11.5 mg. and the phosphorus 5.4 mg. per hundred cubic centimeters. Subsequent urinalyses revealed moderate amounts of albumin with no other pathologic elements.

A diagnosis of constitutional anomaly with athrepsia was made. The infant never took more than 4 ounces at a feeding. He developed a bronchopneumonia and died twelve days after admission.

Necropsy.—This showed a bilateral bronchopneumonia. The stomach was fetal in type, a tubular, nonrotated structure with a capacity of 2 ounces. The spleen was absent, as was the left kidney and ureter. The left suprarenal was normal. There were no splenic or renal arteries. The right ureter had a kink at the pelvic border with a dilatation above.

COMMENT

In this case of congenital absence of the spleen and left kidney and ureter, the infant lived eight months. The gross appearance gave the impression of a congenital anomaly and this was substantiated by the failure to ingest adequate amounts of food and thus to make a normal development. The blood counts were essentially normal.

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From the Department of Pediatrics, Marquette University School of Medicine, and the Milwaukee Children's Hospital.

1. McLean, Stafford, and Craig, H. R.: Am. J. M. Sc. **164**: 703 (Nov.) 1922.

AN EYE SPECULUM FOR USE IN CATARACT EXTRACTION

M. M. CULLOM, M.D., NASHVILLE, TENN.

The cataract operation is justly regarded as among the most delicate in surgery. I do not believe that any surgeon, however skilful and experienced, approaches the extraction of a cataract without a certain degree of apprehension and trepidation.

There are two elements in the phenomenon: first, the delicacy of the technic together with the momentous issue involved, namely, the restoration of sight to the blind; second, the possible complications from action of the patient. The surgeon realizes that in spite of all the precautions with which he surrounds the operation, in spite of the highest degree of technical skill, a

Fig. 1.—Eye speculum for use in cataract extraction: The instrument can be adjusted on the head before preparation of the field. When ready to operate, one can place the speculum in position without soiling the hands.

sudden and often involuntary squeeze of the eye on the part of the patient may absolutely ruin his operation and destroy hopelessly the sight of his patient.

This problem has been attacked in many ways. One popular method is to have an assistant hold the lids apart with lid elevators or hooks. This is bunglesome and puts another assistant into the field, which interferes with the operative freedom and is unsatisfactory. I have seen a patient squeeze out the vitreous with the assistant doing his best to hold up the lid.

Other methods make use of nerve blocking. This is time consuming and puts the eye into an unnatural condition.

Ever since Dr. David Webster used to impress on me while assisting him, "If the patient starts to squeeze, lift the speculum," I have been wondering whether some apparatus could not be devised that would absolutely prevent the patient making pres-

sure on the eyeball during the operation. I believe that the speculum presented here completely solves the problem.

The instrument consists of a stop speculum attached to a rotary bar, which is in turn attached to a metal headband similar to the metal headband of a head mirror. The bar is further stabilized by a half circle metal band, going behind the head, attached to the lower end of the bar. The speculum has a vertical and horizontal adjustment which permits accurate adjustment to the eye. After the speculum is inserted, a set screw on the headband permits the speculum to be lifted away

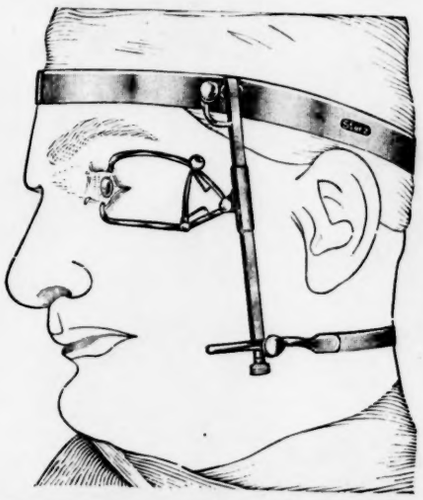

Fig. 2.—Instrument adjusted in patient's eye.

from the eye to the point where the patient cannot exert the slightest pressure on the eyeball.

The instrument is adjustable to any size head and the speculum can be made to take the right position by simply sliding the headband to and from the eye.

700 Church Street.

ECTOPIC PREGNANCY COMPLICATED BY RUPTURE INTO THE INTESTINE

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Textbooks on gynecology and obstetrics often give the impression that the diagnosis of unruptured ectopic pregnancy is comparatively simple and that recognition of the condition after rupture or tubal abortion is made simple by the development of a train of signs and symptoms unvarying in their course and apparent at a glance to a trained observer. Unfortunately, this is not often true; and even in the hands of the masters, the diagnosis of unruptured ectopic pregnancy is more marked by the high percentage of error than by the frequency with which a correct diagnosis is made.

REPORT OF CASE

This case well illustrates the difficulty of diagnosis sometimes encountered and a complication which fortunately is rare:

Aug. 15, 1930, I was consulted by a woman, aged 25, who had been married for seven years. Her complaint was vaginal bleeding. Her past history was unimportant, except for an operation one year previously, at which time an appendectomy was done for chronic appendicitis and a left salpingo-oophorectomy for an ovarian cyst. Six weeks before consulting me, the patient had missed her menstrual period for the first time since her marriage, and she thought she was pregnant. Two days before seeing me, she began to flow moderately and passed a few small clots. This was accompanied by slight lower abdominal cramps.

Vaginal examination revealed a few small clots in the vagina, and slight bleeding from a soft, discolored cervix. The uterus was enlarged to the size of a six weeks' pregnancy and was soft. No masses were palpable in the fornices or culdesac. I felt that a miscarriage was threatened, and ordered her to bed. A slight flow continued for a few days and then stopped. She then left the city and returned to my office after a month. There had been no more vaginal bleeding. Vaginal examination revealed a uterus enlarged to the size of a two and one-half months' pregnancy, and it was my feeling that pregnancy was proceeding normally. The patient returned again in another month, and examination revealed normal increase in the size of the uterus. The patient again left the city and returned in two months. She was in excellent health, but, one week previously, she had had slight vaginal bleeding. She was now, according to her menstrual history, approximately five and one-half months pregnant, but, on examination, the uterus was only the size of a three and one-half months' pregnancy.

I felt that the condition was a missed abortion. I had Dr. O. P. Humpstone see the patient with me in consultation. His examination corroborated my observations and agreed with my diagnosis. We felt that the uterus should be emptied, and, on account of its size, did a vaginal hysterotomy. Much to my surprise, the uterine cavity was found to be empty. Convalescence was uneventful. On the fourteenth day after operation, she had a sudden chill and fever. This was repeated for two days, accompanied by left lower abdominal pain.

Examination at this time revealed a tender, indurated mass in the left fornix, which we felt was an inflammatory condition. The patient was readmitted to the Methodist Episcopal Hospital and on the second day after admission she had a profuse rectal hemorrhage which almost exsanguinated her. Several large clots were passed by rectum. Her temperature became normal after this and remained so. We now realized that we were dealing with an ectopic pregnancy which had ruptured into the intestine. We temporized, however, for twenty-four hours, appreciating the problem we would be up against if operation was attempted and hoping that the hemorrhage would cease. On the next day, however, the patient had another severe hemorrhage, after which she became pulseless and unconscious. She was immediately given a saline infusion and a blood transfusion in bed. Her condition improved somewhat after this, and on the following day, December 30, laparotomy was done, preceded by another blood transfusion. When the abdomen was opened, numerous adhesions were found in the pelvis. After these had been separated, a loop of upper sigmoid was found firmly adherent to the fundus of the uterus and extending over to the left. By sharp and blunt dissection, the adherent sigmoid was dissected away, and we soon opened into a hole in the sigmoid. This was firmly adherent to a small cavity in the wall of the left side of the uterus, just below the cornu. There was active hemorrhage from the base of this cavity. The opening in the sigmoid was sutured, the cavity packed with gauze, and the wound closed with drainage.

Another blood transfusion was given before she left the table. She had a satisfactory convalescence and was out of the hospital in twenty-one days. A small fecal fistula developed, after operation, which closed within a short time.

Microscopic examination of pieces of tissue taken from the cavity in the wall of the uterus showed decidua and chorionic villi. The patient is now in perfect health.

COMMENT

Intestinal perforation during ectopic pregnancy is fortunately a rare condition. In looking over the literature of the days before the advent of aseptic surgery and before early operation was done for ectopic pregnancy, I found several reports of fetal bones and remains being passed by rectum.

Armstrong,[1] in 1835, reported a case in which bloody stools suddenly developed in a woman who was supposed to be six months pregnant, and several large fetal bones were passed by rectum. She died of hemorrhage and gradual exhaustion.

Benham,[2] in 1876, reported a case of extra-uterine pregnancy with the discharge of a macerated five months fetus by rectum. The condition was followed by a stricture of the rectum.

Atkinson,[3] in 1881, reported a case of a six months' abdominal pregnancy with rupture into the sigmoid. Large fetal bones were passed by rectum and the patient died of exhaustion.

Within more recent years, Chase[4] of New York, in 1920, reported a case of a right tubal pregnancy in a woman, aged 25.

1. Armstrong, J.: Anomalous Case of Ectopic Pregnancy in a Syphilitic Patient; Discharge of Fetal Bones by Rectum, London M. Gaz. **16**: 51-52, 1835.
2. Benham: Notes of a Case of Extra-Uterine Pregnancy, with Discharge of Fetus per Rectum, Brit. M. J. **2**: 361, 1876.
3. Atkinson: Extra-Uterine Pregnancy; Fetal Bones Passed by Rectum, M. Rec. **19**: 49, 1881.
4. Chase: Ectopic Pregnancy with Perforation of the Sigmoid, M. Rec. **97**: 164, 1920.

The condition was discovered after exploratory laparotomy. The mass was found adherent to the colon. After the adhesions had been cut, a large intestinal perforation was found occupied by blood coagulum and with the fetus occupying the colonic lumen. The perforation was sutured and the patient was discharged cured a fortnight later.

Edgar,[5] in 1901, reported a case of ectopic gestation with formation of a large pelvic hematocele and secondary rupture into the upper third of the sigmoid flexure. Laparotomy revealed a large mass of adhesions, around the uterus, which could not be separated. A posterior colpotomy was then done and there was profuse drainage of foul blood and feces by vagina. The patient died and autopsy revealed the sigmoid adherent to the uterus, with a perforation communicating with a cavity behind the uterus filled with blood and pus.

In a case reported by Schwartz,[6] the pregnant right fallopian tube was discovered at emergency laparotomy. It was intimately adherent to a loop of the small intestine and the rectosigmoid. Excision of the right adnexa showed a large rectal perforation. Ultimate recovery was complicated by a small intestinal fistula.

Patti,[7] in 1927, reported a case of tubal pregnancy, complicated by profuse rectal hemorrhage. Diagnosis was made after exploratory laparotomy revealed the rectum adherent to the pregnant tube with a large perforation present. The large indurated perforation was ingeniously closed by two layers of tissue flaps from the excised adnexa, the intestinal and pelvic walls, and the transplant was held in place by a Mickulicz drain. The patient made an excellent recovery.

The treatment of this unusual complication of ectopic pregnancy is laparotomy as soon as the condition is suspected. The diagnosis unfortunately has seldom been made until after rectal hemorrhage occurs. Transfusion is a life saving procedure and it is often advisable to use this measure both immediately before and after operation. The perforation in the sigmoid should be sutured if possible, but if the opening is too large for a satisfactory closure, use should be made of omental grafts or tissue flaps from nearby adnexa or pelvic walls. Despite the seriousness of the complication, the operative mortality in the cases reported in recent years has been comparatively low.

SUMMARY

This was a case of interstitial pregnancy which ruptured into the sigmoid. The sigmoid was adherent to the fundus of the uterus as the result of a previous operation.

235 East Nineteenth Street.

5. Edgar, J.: Ectopic Gestation, with Formation of Large Hematocele and Secondary Rupture into Upper Third of Sigmoid Flexure, Glasgow M. J. **56:** 143-145, 1901.

6. Schwartz, A.: Perforation du rectum par un placenta ectopique, Paris M. J. **1:** 581-583, 1924.

7. Patti, F.: Ovarian Pregnancy with Perforation of the Rectal Wall, Arch. di ostet. e ginec. **14:** 49-62 (Feb.) 1927.

CONGENITAL MALFORMATION OF THE RIBS: REPORT OF AN EXTREME CASE

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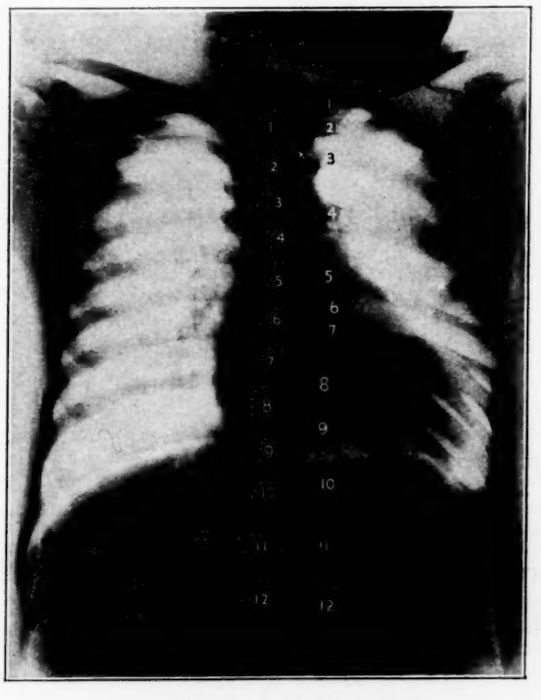
The occurrence of supernumerary ribs in the cervical or lumbar regions is not rare.[1] On the other hand, congenital absence of ribs seldom occurs,[2] although a few cases have been reported.[3]

The ribs may vary considerably in form and size, and Hrdlička,[4] who has examined the ribs of several hundred skeletons, concludes that such variations occur much more frequently in the upper ribs.

Few instances of fusion of ribs have been reported. Meyer[5] describes a patient in whom the second and third ribs were fused throughout three fourths of their length, and he refers to a report made by Lane in 1883, in which he recited several instances of fusion of a cervical and a first rib, and fusion of the first and second ribs. He also quotes Bland Sutton as authority for the statement that "fusion of the ribs, resulting



Appearance of ribs.

in the formation of bicipital ribs, occurs only in connection with cervical ribs, or in relation to the first and second." Hrdlička[4] reports an instance of fusion of the fourth and third ribs. We cannot find a report of fused ribs below the fourth. Hrdlička states that bicipital and bicaudal ribs are more frequent on the left side, and the reports we have found bear out this belief.

REPORT OF CASE

C. C., a girl, aged 7 years, was brought to us because her parents noticed a slight elevation of her left shoulder and an undue prominence of the left anterior chest, in the upper part.

She is the oldest of three children, all of whom are exceptionally healthy and well nourished. Both parents are in good health and of athletic build.

When the patient was 15 months old, the mother first noticed a slight prominence of the left chest, and on calling this to the attention of the family physician, a roentgen examination was made, which showed the presence of deformed ribs. The history is otherwise unimportant.

The child is alert and well nourished and is of normal weight and height. The left shoulder is 1 inch higher than the right. The left chest bulges slightly between the second and fifth ribs anteriorly. The fourth left interspace is abnormally wide. No other defect is noted.

The roentgenogram shows the fourth rib, on the left side, to be more than twice the size of the others. The fifth rib, beyond its tubercle, is small and poorly developed. The sixth and seventh ribs are fused for a short distance beyond their tubercles, where the mass divides into four ribs of varying sizes. The twelfth rib is absent. On the right side, the twelfth rib is rudimentary. The other ribs are normal.

This case seems noteworthy for the following reasons:

1. There is a multiplicity of abnormalities of the ribs.

2. We can find no record of a case in which fusion of the ribs below the fourth has occurred, or in which fused ribs have bifurcated as in this case.

1. Myers, W. A.: Cervical Rib: Report of Seven Cases, J. Missouri M. A. **21:** 146 (May) 1924. Trostler, I. S.: Sixty-Five Cases of Cervical Ribs, M. Rec. **12:** 43, 1917.

2. Whitman, Royal: Orthopedic Surgery, Philadelphia, Lea & Febiger, 1930, p. 244. Tubbey, A. H.: Deformities Including Diseases of the Bones and Joints, New York, Macmillan Company **1:** 37, 1912.

3. Maloney, Timothy: Developmental Deficiencies of Ribs, Clifton M. Bull. **3:** 34, 1916. Smith, Carroll: The Congenital Absence of Ribs; Report of a Case with Complete Absence of the Left Seventh and Eighth Ribs, J. A. M. A. **60:** 875 (March 22) 1913. Packard, J. H.: Deficiency in the Number of Ribs, Proc. Path, Soc., Philadelphia **2:** 121, 1867. Gladstone, R. J.: A Case of Left Inferior Vena Cava Occurring in a Female Subject in Whom the Left Superior Intercostal Vein Joined the Vena Azygos Major, and the Twelfth Ribs Were Absent, J. Anat. & Physiol. **46:** 220, 1911-1912.

4. Hrdlička, Aleš: Contribution to the Osteology of Ribs, Proc. A. Am. Anat. **12-14:** 61, 1889-1900.

5. Meyer, A. W.: Spolia Anatomica, Anat. Rec. **12:** 43, 1917.

Special Article

THE FUNDAMENTALS OF ELECTROCARDIOGRAPHIC INTERPRETATION

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(Continued from page 1174)

ABNORMAL P-R INTERVAL

A prolonged P-R interval is one that is over 0.20 second in duration. It is indicative of auriculoventricular block, since the greater part of the P-R interval is consumed in the passage of the excitation wave through the A-V node and the junctional tissue (figs. 63 to 67).

A shortened P-R interval may occur in A-V nodal rhythm, (figs. 100 and 101) when the P wave is inverted and falls just before, just after or with the Q-R-S wave, and also in a recently described rhythm consisting of functional bundle branch block, occurring in healthy young people prone to paroxysmal tachycardia. It may also appear to be shortened in cases of heart block, ventricular extrasystoles and reciprocal rhythm (escape), but in such cases it is better to speak of it as the interval between the P wave and the R wave rather than of the P-R interval as such.

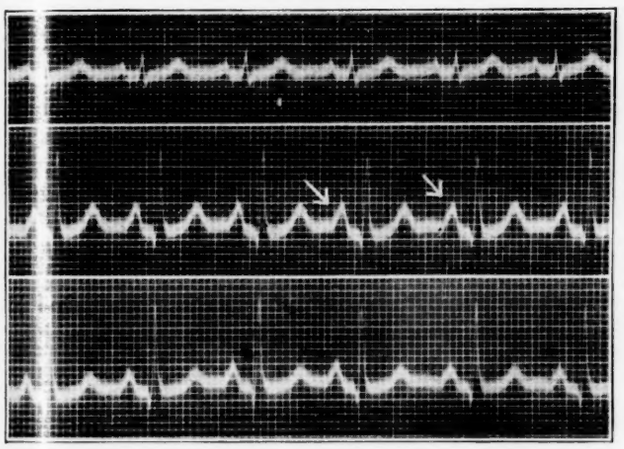


Fig. 11.—A graph showing more marked evidence of auricular hypertrophy than figure 10; Q-R-S_1 diphasic.

ABNORMAL Q-R-S COMPLEX

In most cardiac arrhythmias and other disturbances of the cardiac mechanism, the origin of the disorder lies in the auricles or in the A-V node or bundle and the ventricles simply follow suit. The Q-R-S wave is therefore usually governed by the activities represented by P waves, F waves or A-V nodal control. It represents the spread of this impulse (electrical excitation wave) through the normal conduction system of the ventricles. Such a Q-R-S wave is said to have physiologic outlines; that is, it is normal in all respects (fig. 8). The normal appearance of the complex is due to the fact that it is of supraventricular origin; it arose above the main branch of the A-V bundle. If the Q-R-S wave is the result of an impulse from an ectopic focus below this level in the conduction system, it is of abnormal form, and is spoken of as an aberrant Q-R-S complex (fig. 45). It is a wave that is the result of an abnormal origin or of an abnormal spread of the excitation impulse; a potential developed in an abnormal manner.

Increased amplitude of the Q-R-S complex in lead 2 is of little or no significance (fig. 117). Increase in depth of the Q or S waves and inversion of the R wave in lead 2 are abnormal. They indicate markedly abnormal left axis deviation, rare congenital heart disease, intraventricular block, and most commonly

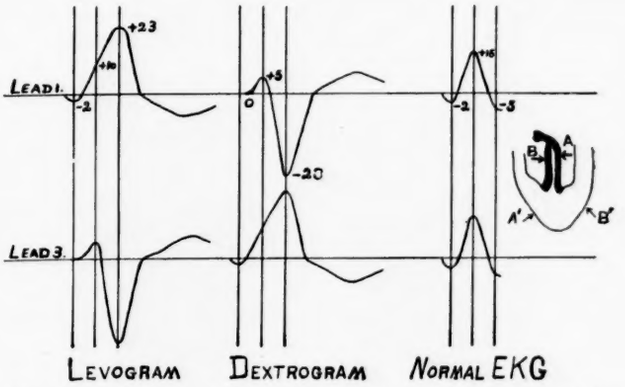
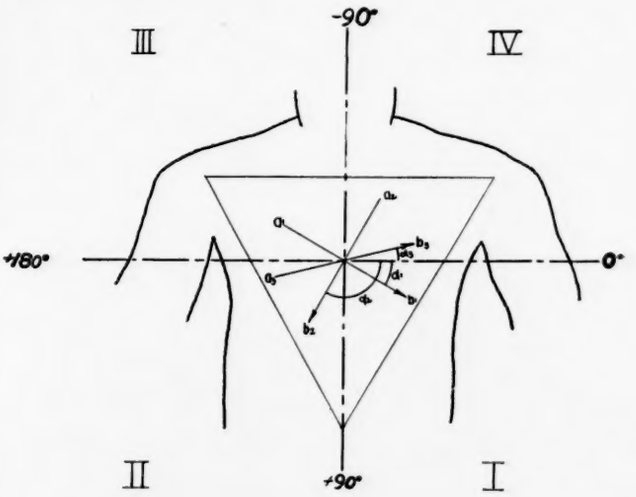


Fig. 12.—A lesion of the left bundle branch at *A* forces the excitation wave to the ventricle to descend entirely through the right bundle branch, which supplies the right ventricle. Likewise a lesion of the right bundle branch at *B* confines the descending excitation wave to the left bundle branch supplying the left ventricle. In either case the corresponding curves are characteristic and similar in form to curves obtained by stimulating the right and left ventricles at A'_1 and B'_1, respectively. The first series of curves corresponding to leads 1 and 3 is a levogram, which is obtained when the right bundle branch has been damaged. The middle curves represent the dextrogram resulting from injury to the left bundle branch. The curves on the right represent the initial phases of the normal electrocardiogram. The curves have been arranged horizontally as if they were crossing common vertical lines. Therefore, after inserting the amplitudes of the curves where they cross these lines and marking them as + or — quantities according as the deflection is up or down, one finds

$$Q_1\ (-\ 2) + Q_2\ (+\ 0) = Q_3\ (-\ 2)$$
$$R_1\ (+\ 10) + R_2\ (+\ 5) = R_3\ (+\ 15)$$
$$S_1\ (+\ 23) + S_2\ (-\ 28) = S_3\ (-\ 5)$$

The values for Q_3, R_3 and S_3 represent the amplitude of these waves in the curve to the right in lead 1. Here it is seen that the initial phases of the normal electrocardiogram are the algebraic product of the levogram and the dextrogram.



Angle of Deviation	Potential Vector	Quadrant	Remarks
α_1	a_1 b_1	I (0° to +90°)	Normal left axis deviation
α_2	a_2 b_2	II (+90° to +180°)	Abnormal right axis deviation
α_3	a_3 b_3	IV (0° to -90°)	Abnormal left axis deviation

Fig. 13.—Einthoven's triangle, showing the limits of normal and abnormal axis deviation.

ventricular extrasystoles. In the last two named conditions the Q-R-S complex is abnormally wide (more than 0.1 second) and is otherwise deformed.

Decreased amplitude in lead 2 is said to be present when the Q-R-S complex projects less than 5 mm. in either direction. This is of no great assistance in

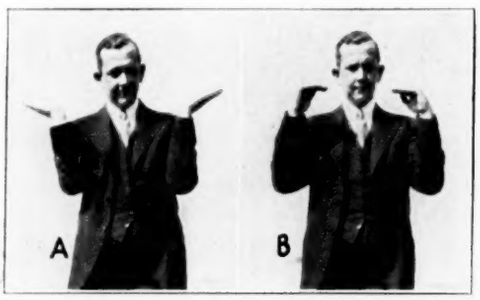


Fig. 14.—A mnemonic device for remembering which is right and which is left axis deviation. If the clinician imagines that he is standing at the left end of an electrocardiogram and is gazing down over the record toward the right end, his left hand representing lead 1, his right hand lead 3, *A* shows the hands in the position of the chief deflections of Q-R-S_1 and Q-R-S_3 when left axis deviation is present, whereas *B* shows the hands in the position of Q-R-S_1 and Q-R-S_3 when right axis deviation is present. This was first called to the author's attention by Dr. W. A. Brams.

drawing diagnostic conclusions, since it may be caused by one of seven conditions, when it is not due to artefact. Three of these conditions not usually associated with decreased amplitude of Q-R-S in leads 1 and 3 are left or right axis deviation alone, right or left bundle branch block, and, in isolated form, ventricular premature contractions, if distinctly right or left in type. The remaining four conditions causing low amplitude of Q-R-S_2 are also responsible for what is called "low voltage" in all leads (fig. 116). Here the amplitude of the Q-R-S waves is diminished to less than 5 mm.

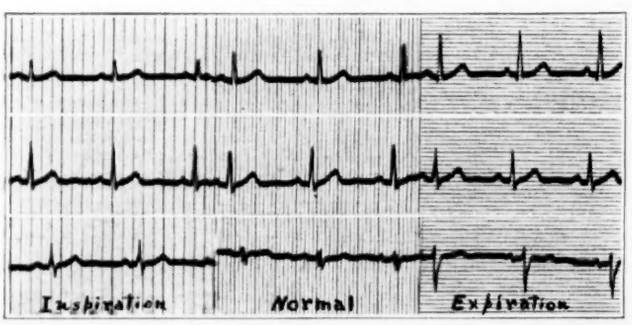


Fig. 15.—Electrocardiograms showing the influence of inspiration and expiration on the graphic record.

in either direction from the base line in all leads. It is seen in, but is not diagnostic of, marked myocardial disease (usually infarction from coronary occlusion), ventricular dilatation, large pericardial effusions, extensive anasarca, and hypothyroidism. Sometimes it occurs from an unknown cause, and rarely it is found in normal individuals.

Alternation of amplitude of the Q-R-S wave, without alternating change of shape or of time interval, is exceedingly rare, although alternation of the arterial pulse is common (fig. 121).

Notching or slurring, if marked, occurs only with ventricular extrasystoles, paroxysmal ventricular tachycardia or intraventricular block. Notching or slurring of lesser degree are significant and, if constant, may be precursors of signs of greater conduction disturbances. A slight notching or slurring may occur normally or with considerable axis deviation in either direction. Study of Q-R-S in leads 1 and 3 is primarily of value in demonstrating preponderant axis deviation which may be helpful in itself, or in distinguishing types of bundle branch block, or in determining the site of origin of ventricular extrasystoles. Although abnormalities of rhythm or of shape of the Q-R-S complex may be seen better in these leads than in lead 2, this is not usually the case.

PROLONGED Q-R-S INTERVAL

If the duration or width of the Q-R-S complex is over 0.1 second, it is indicative of abnormally marked left or right axis deviation (usually a relatively slight

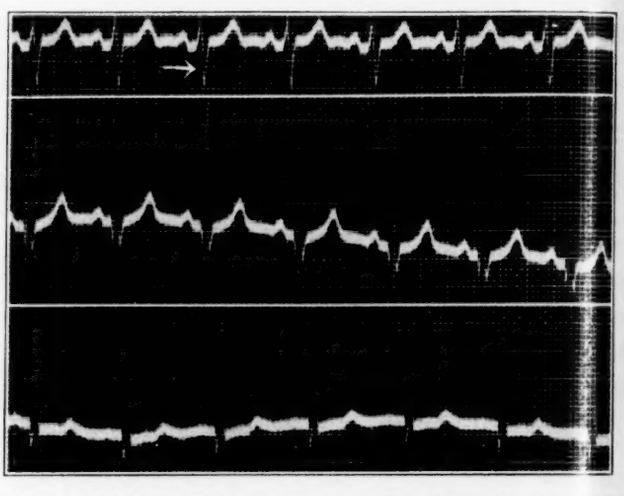


Fig. 16.—Right ventricular preponderance: Curves from the three leads reveal right axis deviation. The right heart was definitely enlarged, the result of chronic mitral stenosis. Note the inverted major initial deflection in lead 1.

increase in duration of Q-R-S complex occurs here), ventricular extrasystoles, paroxysmal ventricular tachycardia, or intraventricular block (figs. 73 and 74).

ABNORMALITIES OF THE T WAVE

Increase in amplitude may be a transient physiologic effect of vigorous exercise, even to double the normal height. Other causes are not clear. In the case of ventricular extrasystoles, marked axis deviation and bundle branch block, the S-T interval and also the T wave are opposite in direction to the abnormal

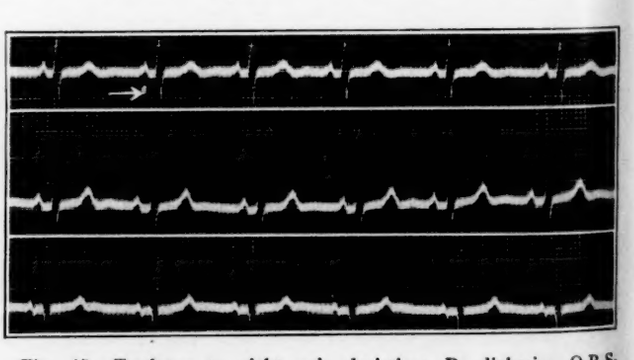


Fig. 17.—Tendency to right axis deviation: P_3 diphasic; Q-R-S_1 diphasic.

Q-R-S complex (figs. 16, 19, 25, 26, 31, 81 and 87). Here the T wave is frequently abnormally large. This opposite direction of the T wave to the Q-R-S complex in leads 1 and 3 often aids in differentiating marked axis deviation due to cardiac disease from that of lesser degree due to change in position of the heart, where the

T wave and the Q-R-S complex have the same direction.

Decrease in amplitude in lead 2, especially below 1 mm., is most commonly the result of the effects of

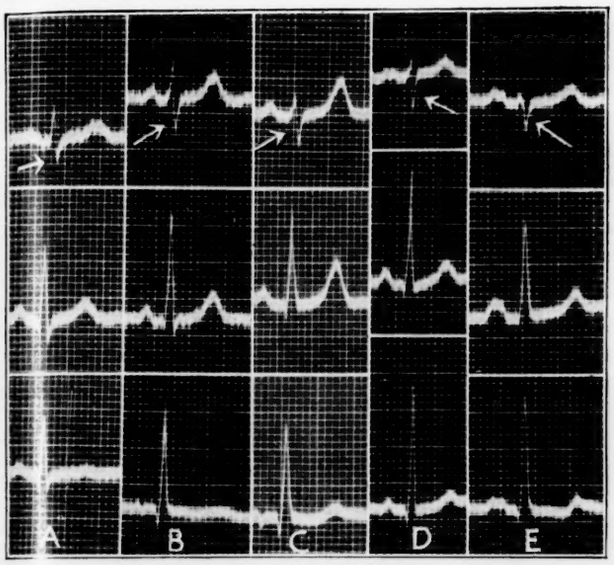


Fig. 18.—Electrocardiograms from five different hearts to show different degrees of right axis deviation. This change becomes progressively more marked as we go from *A* to *E*. Even in *D* and *E* the diagnosis of right ventricular preponderance can be made only after it is known from other sources, in addition to the graphic evidence of right axis deviation here presented, that the heart is actually enlarged and that these graphic alterations result from changes in the heart itself.

digitalis, of myocardial weakness or of hypothyroidism but is also frequently present in marked left or right axis deviation and even in right or left bundle branch block.

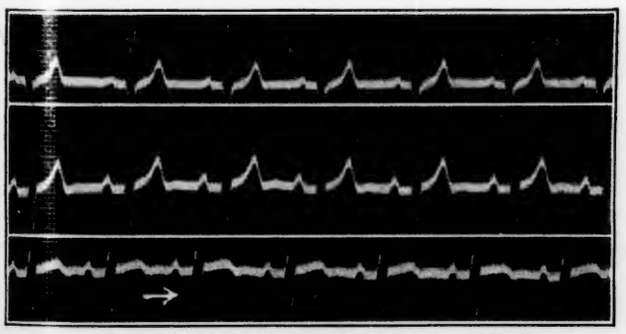


Fig. 19.—Left ventricular preponderance: Curves from the three leads reveal left axis deviation. The heart was definitely enlarged to the left, the result of chronic arterial hypertension. Note the inverted major initial deflection in lead 3.

Inversion of the T wave occurs as a result of digitalis in large doses (fig. 51). Not only does digitalis cause definite inversion, especially of the S-T interval, but the shape of this interval and of the T wave is so characteristic that at times a glance at an electrocardiogram may suffice for the diagnosis of a marked digitalis effect. Such graphic evidence may be used as a guide to therapy or as a dependable indication of the use of this drug in the immediate past. Coronary thrombosis with cardiac infarction tends to give an inverted T wave, best studied in lead 1 or 3 rather than in lead 2, as will be pointed out later (figs. 106 to 110, 123, 124, 134 and 138). Negative T_2 or T_1 and T_2 or T_2 and T_3 do not occur normally. Negative T_3 is normal. Negative T_1, T_1 and T_2, then T_1, T_2 and T_3 and finally T_2 and T_3 have significance in the order given. Negative T_2 and T_3 may be transient; the electrocardiogram should be repeated (fig. 145). A diphasic T wave, if constant, may be the precursor of a permanently negative T wave. Alternation of the T wave rarely occurs, but it may occasionally accompany alternation of the arterial pulse.

VENTRICULAR PREPONDERANCE

The resultant of the projection of the true axis of the distributed electric potential of the heart beat is designated as the electrical axis of the electrocardiogram. This electrical axis has the direction of the resultant of all the potentials developed by the component muscle fibers of the heart. It constantly changes direction during each systole of the heart. A calculated axis corresponds to the direction of this resultant or composite charge at a given instant of time. For the determination of this and for further details regarding it, the reader is referred to a more exhaustive treatise

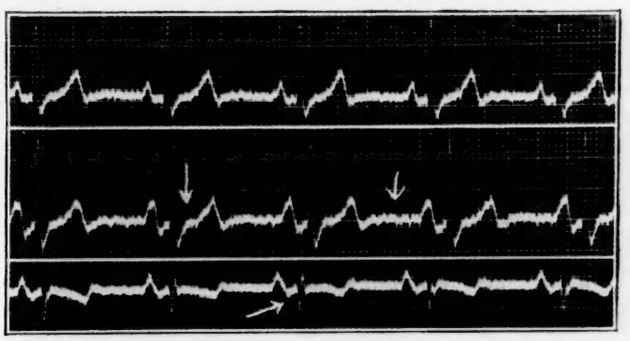


Fig. 20.—Tendency to left axis deviation, with an inverted lead 3, resulting from a horizontal position of the heart caused by a high diaphragm. Q-R-S_3 shifts from diphasic to inverted. This is not a good record for diagnosis.

on the subject. Suffice it to say that the direction of the resultant electrical axis of the heart lies within wider limits than does the anatomic axis, both normally and abnormally.

The normal electrical axis lies between the degrees 0 and plus 90 of Einthoven's triangle (fig. 13). If the

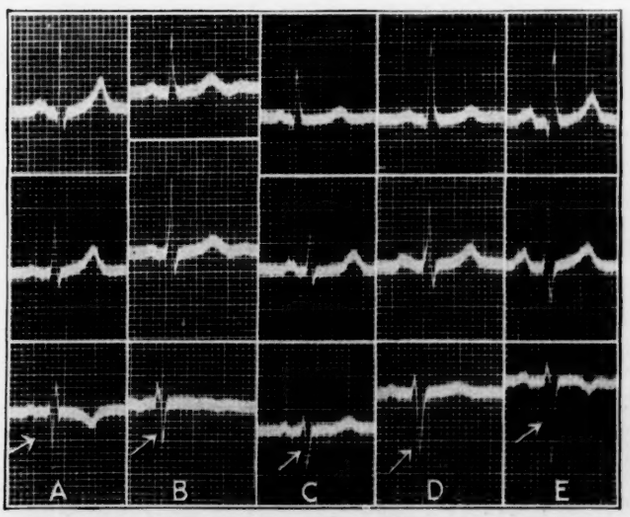


Fig. 21.—Records from five different hearts showing different degrees of left axis deviation. Here, again, left ventricular preponderance can be diagnosed only after these changes have been shown to be the result of cardiac disease.

angle is minus, that is, above the horizontal, there is so-called abnormal left axis deviation (fig. 19). If it is beyond plus 90, that is, to the right of the vertical, there is abnormal right axis deviation (fig. 16). The

terms left and right axis deviation are better than left and right ventricular preponderance because they are more accurate designations of just what is referred to electrocardiographically. The latter terms are applicable only after one has made sure that the electrical axis deviation present results from changes in the heart itself (figs. 16 and 19).

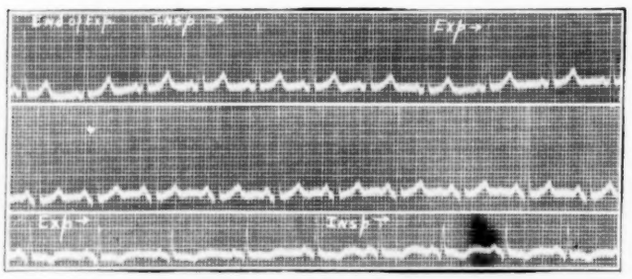


Fig. 22.—Each group of waves represents a perfectly normal heart beat. The abnormal rhythm is due to an irregular disposition of cycles; to a variation in the length of the T-P interval. The variation in rate, as a rule, follows closely the phases of respiration, being more rapid with inspiration and slower during expiration (leads 1 and 3). Frequently there is also a variation in the height of the Q-R-S complexes (shifting axis) with the phases of respiration, these being larger with inspiration and smaller with expiration (lead 1).

The position of the heart within the chest influences the graphic records. Displacement of the heart upward, to a transverse position with much rotation, by a high diaphragm, may give graphic evidence of left axis deviation, although the left ventricle may be normal (fig. 20). A high diaphragm giving evidence of left ventricular preponderance is seen in a short, fat individual, that is, in a person with a broad chest or a big abdomen; during pregnancy, and with full expiration. A low position of the diaphragm in a tall, long chested individual leads to a vertical position of the heart with

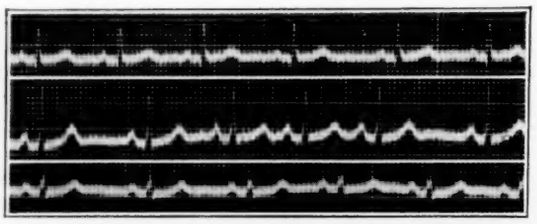


Fig. 23.—Sinus arrhythmia bearing no relation to respiration: This type of sinus arrhythmia is abnormal. At times it is a forerunner of a more serious cardiac disturbance. Further electrocardiographic study is indicated.

slight rotation and gives an electrocardiogram, especially on full inspiration, showing slight right axis deviation, even when the right ventricle is small and the left ventricle actually a little preponderant.

Serious disease or enlargement of one of the ventricles may be present with no evident abnormality of the electrical axis at all (figs. 10 and 11). When both ventricles are enlarged correspondingly they tend to neutralize each other in the graphic record, and the result is normal axis deviation. Respiration by changing the height of the diaphragm, as seen before, alters the axis deviation normally, and sometimes when it is forced it causes a marked change in the electrocardiogram (fig. 15). The heart rotates, on an average, 15 degrees with each systole; if it is caused to rotate from 25 to 30 degrees, this abnormal rotation changes all leads of the electrocardiogram. On inspiration, the heart rotates in a clockwise direction; on expiration, in a contraclockwise direction. Shifting the subject from right lateral to left lateral position may or may not shift the electrical axis detectably. Such a shift may be entirely absent in some cases of adherent pericarditis but is not a dependable diagnostic sign.

A simple, practical, crude and arbitrary guide to the degree of electrical axis deviation, which can be employed without detailed formula or geometrical device, is an index derived by subtracting the sum of the amplitudes in millimeters of R_3 and S_1 from the sum of the amplitudes of R_1 and S_3.

$$\text{Index} = (R_1 + S_3) - (R_3 + S_1).$$

If this index is over 30 mm., left axis deviation is present, the normal being from 20 to 30 mm. If it is under —15 mm., right axis deviation is present, the

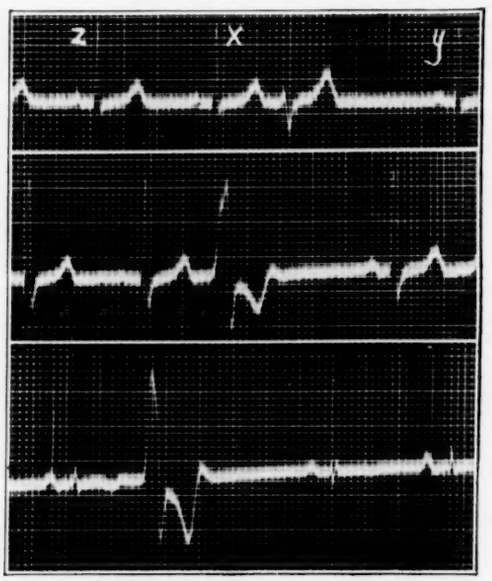


Fig. 24.—Right ventricular extrasystoles from a single focus: The distance x to y is twice that of y to z. This demonstrates the compensatory pause which follows ventricular extrasystoles. P_1 flat. P_3 shifts. $Q\text{-}R\text{-}S_3$ diphasic, low voltage, notched. T_3 inverted.

normal here being from —10 to —15 mm. This is a method quickly carried out and very useful in clinical work. It is approximately as accurate as the angle calculated on Einthoven's triangle.

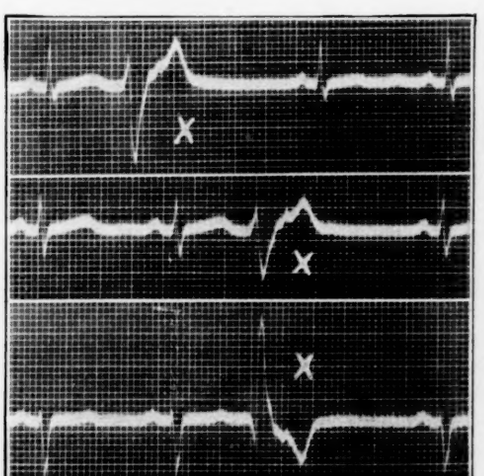


Fig. 25.—Right ventricular extrasystoles from a single focus. Left axis deviation, $Q\text{-}R\text{-}S_3$ inverted.

The left ventricle weighs 1.8 times as much as does the right ventricle. When a supraventricular impulse passes to the ventricles, it reaches the two simultaneously. Each has its separate and complete system of distributing fibers, each yields its own electrical cur-

rents, and each, while beating normally, yields a distinctive curve (fig. 12). The algebraic sum of these two curves is represented by the ventricular waves of the normal electrocardiogram. If the foregoing ratio

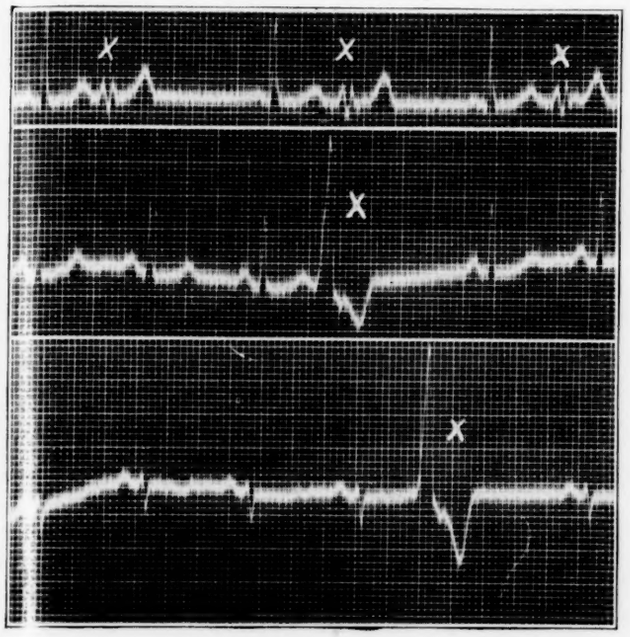


Fig. 26.—Right ventricular extrasystoles from a single focus. Left axis deviation, Q-R-S_3 inverted. Note again the compensatory pause.

of the mass of the right and left ventricle is altered, as in hypertrophy, the form of the graphic waves varies from the normal, and the electrocardiogram will show right or left axis deviation. It is such an altered ratio

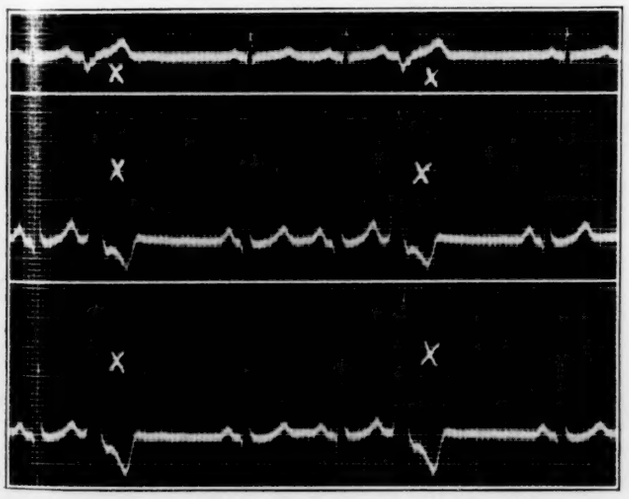


Fig. 27.—Right ventricular extrasystoles from a single focus. These have a rhythmic appearance and occur every third ventricular beat.

and that alone which conditions the form of the electrocardiogram showing preponderance. Right or left ventricular preponderance, therefore, does not mean that the ventricle referred to is actually, anatomically, larger than the other ventricle.

Provided the heart is not materially displaced, electrical curves indicating right or left preponderance are to be taken seriously but cannot always be accepted as absolute proof. The general conception, which follows the lead of Lewis, is that an inverted major initial deflection in lead 1 indicates right preponderance, left bundle branch block or right ventricular extrasystole, whereas inversion of the major initial deflection in lead 3 indicates left preponderance, right bundle branch block or left ventricular extrasystole. The diagnosis of preponderance, on this basis, has not been questioned. The validity of the present method of localizing bundle branch block and ventricular extrasystoles has been questioned. The contention is that here right and left have been reversed. In favor of this belief is the fact that right bundle branch block occurs more frequently in electrocardiograms, while left bundle branch block occurs more frequently at necropsy. However, some of this discrepancy may be due to the frequency of left ventricular preponderance

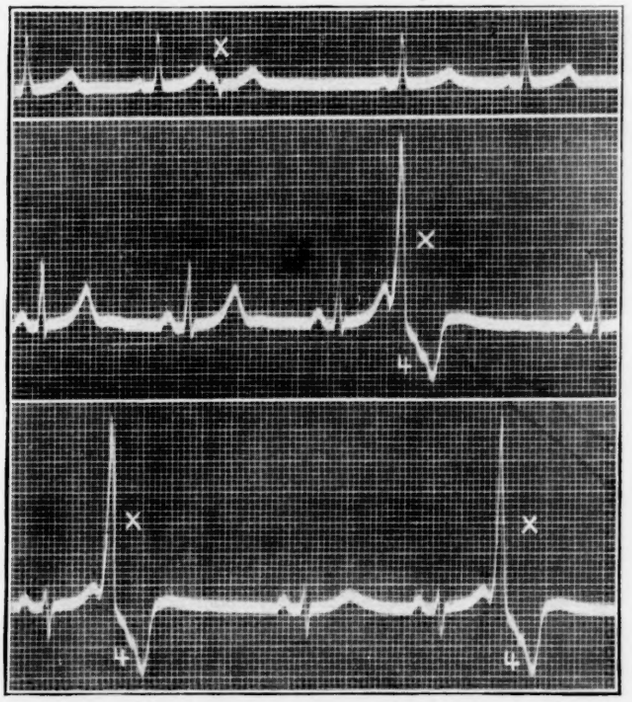


Fig. 28.—Right ventricular extrasystoles at *x* with retrograde P waves superimposed on them at *y*. Note that there is no compensatory pause following these extrasystoles.

in these cases, which determines the direction of the major initial deflection, the block present serving to prolong the span of the Q-R-S complex. Confirmatory

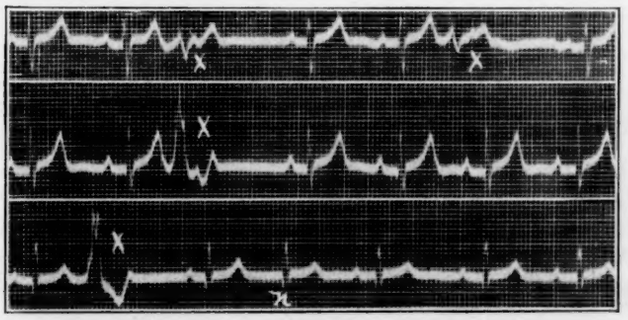


Fig. 29.—Right ventricular extrasystoles at *x* with an auricular extrasystole at *n*, which was thought at first to be of nodal origin, owing to the faintness of the diphasic P preceding it. No compensatory pause follows this extrasystole.

evidence is needed before the more recently developed views are finally accepted.

Right ventricular preponderance is seen most commonly in mitral stenosis and in congenital pulmonary

stenosis (figs. 16, 17 and 18). Pulmonary stenosis is rarely if ever found without this deviation, which is of higher degree, here, than in any other condition. Occasionally patent ductus arteriosus, patent interventricular septum, emphysema, chronic pulmonary fibrosis and

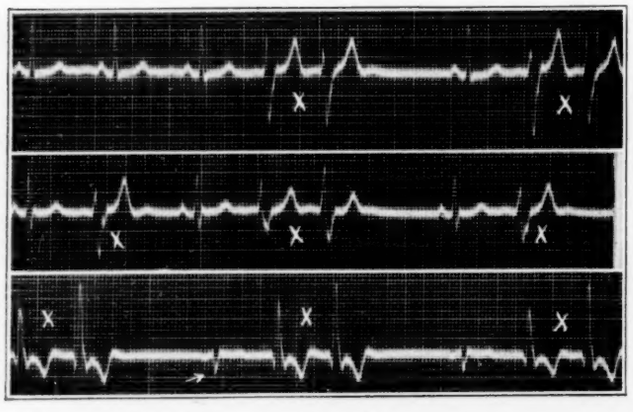


Fig. 30.—Right ventricular extrasystoles from multiple foci. These have a coupled appearance. Left ventricular preponderance, Q-R-S_3 inverted. Myocardial damage, Q-R-$S_{1, 2, 3}$ slurred, Q-R-S_3 notched. P_3 diphasic. T_3 diphasic.

rarely Ayerza's disease give rise to right axis deviation. Left bundle branch block may be responsible for right axis deviation, in which case the diagnostic graphic changes will be present. Right ventricular extrasystoles likewise give rise to isolated complexes showing right axis deviation, along with the characteristic alterations of these complexes (figs. 24 to 30).

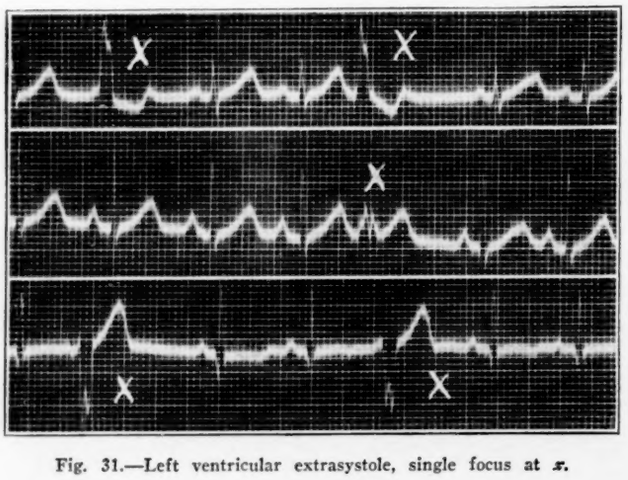


Fig. 31.—Left ventricular extrasystole, single focus at *x*.

Congenital dextrocardia, with or without general situs inversus, shows a complete inversion of all complexes in lead 1, and an interchange of the usual lead 2 and 3 (figs. 118, 119 and 120). In relation to the heart in such a case, the right arm corresponds to the left arm of a normal person, and the left to the right arm. When a graphic record shows these changes it is pathognomonic of this condition provided there is no error in technic; that is, a crossing of electrodes or wires.

Left ventricular preponderance is seen most commonly in enlargement of the left ventricle from any cause (figs. 19, 20 and 21). Here it is frequently of high degree. It is also seen in hypertension, in aortic stenosis, in aortic regurgitation, and in senile hearts. Right bundle branch block, when of moderate or marked degree, gives rise to graphic records showing signs of left axis deviation along with other diagnostic changes in the curves. Left ventricular extrasystoles give rise to isolated instances of left axis deviation, involving only the ectopic ventricular complexes, which show other diagnostic alterations (figs. 31 to 35).

SINUS ARRHYTHMIA

Sinus arrhythmia represents the simplest disturbance of cardiac rhythm. It is usually physiologic, a simple waxing and waning of the heart rate corresponding to the phases of respiration, due to a variation in the activity of the pacemaker caused by alterations in vagal tone. It is commonly seen in children and in young adults. If very marked or unrelated to respiration it is

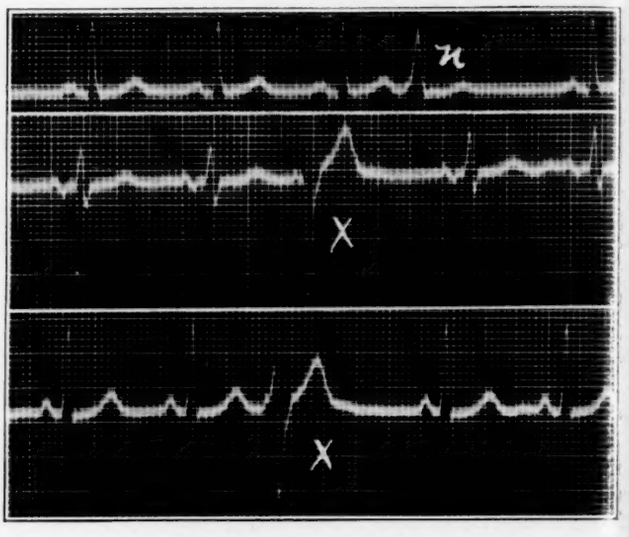


Fig. 32.—Left ventricular extrasystole, single focus at *x*, with nodal extrasystole at *n*. The pause following a nodal extrasystole is compensatory. Myocardial damage, Q-R-$S_{1, 2, 3}$ slurred. P_2 diphasic.

an abnormal phenomenon, in which case digitalization or an unknown factor may be responsible.

Each beat of the heart is from the normal pacemaker and hence the individual waves and sequence of cham-

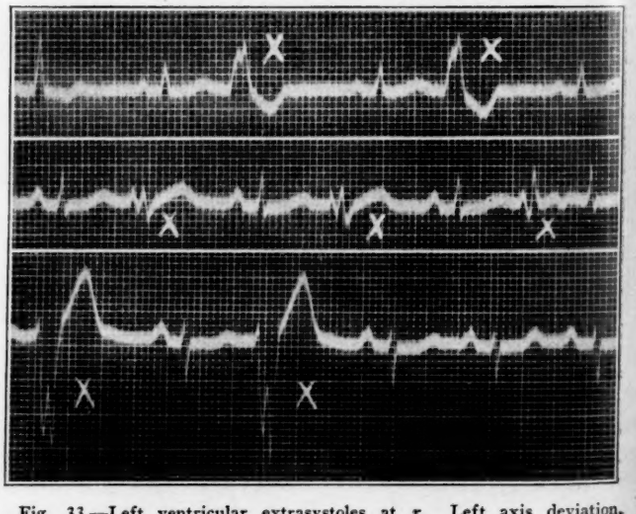


Fig. 33.—Left ventricular extrasystoles at *x*. Left axis deviation, Q-R-S_3 inverted. Myocardial damage, Q-R-$S_{1, 2, 3}$ slurred. $T_{1, 2, 3}$ low voltage.

ber contractions are normal throughout the electrocardiogram. There is an irregular disposition of beats; that is, a variation in the length of the interval between individual cardiac cycles, a variation in the length of the T-P interval (figs. 22, 23 and 130).

PREMATURE CONTRACTIONS

Premature contractions are of three types: ventricular, auricular and nodal extrasystoles.

VENTRICULAR EXTRASYSTOLES

Ventricular extrasystoles constitute the commonest cardiac arrhythmia, being responsible for most cases of

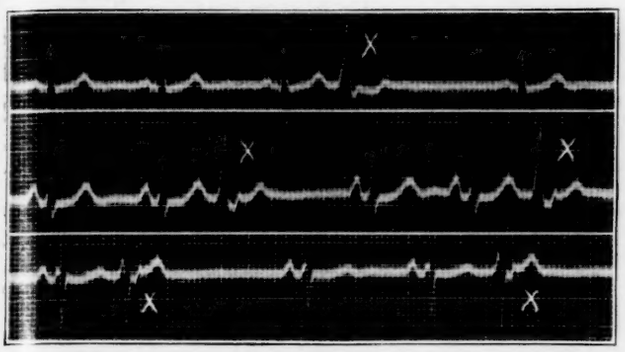


Fig. 34.—Left ventricular extrasystoles at *x*. Left axis deviation, Q-R-S_3 inverted. Myocardial damage, P_1 notched, Q-R-$S_{1, 2, 3}$ slurred, Q-R-S_2 diphasic, Q-R-S_3 notched.

"intermittence." The ectopic focus may be anywhere in the ventricles. The disturbance of rhythm is, as a rule, limited to the ventricles. No auricular contraction precedes the ventricular contraction, since usually the extrasystole, arising as it does here in the ventricle, does not cause in turn a retrograde premature auricular beat. This results in the extrasystole being followed by a

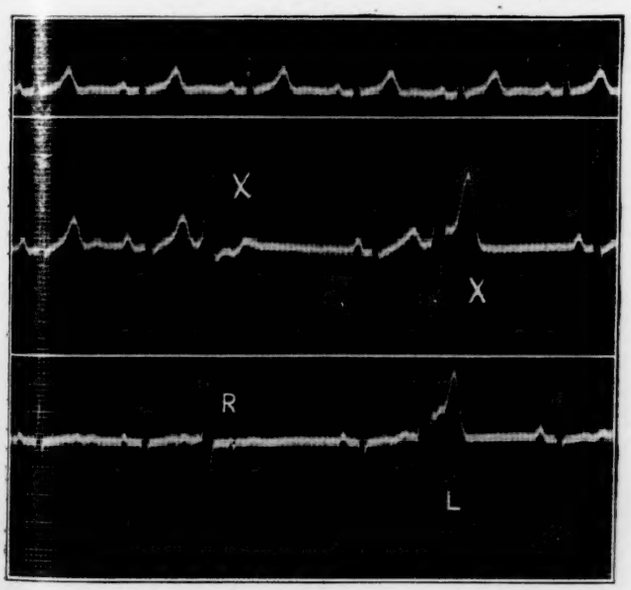


Fig. 35.—Ventricular extrasystoles, multiple foci, in both ventricles; from right ventricle at *R* and from left ventricle at *L*. Myocardial damage, Q-R-$S_{1, 3}$ slurred. T_3 diphasic.

"compensatory pause." The auricular rhythm is undisturbed. The maintenance of a dominant rhythm is made possible by this compensatory pause, which causes the sum of the short interval preceding and the longer interval following the extrasystole (the interval between the two normal beats on each side of the extrasystole) to be equal to the interval between two normal cardiac cycles. This compensatory pause is best explained by the "all or none" law of Bowditch, as discussed in elementary physiology.

No P wave precedes the Q-R-S complex, since the latter is of ectopic ventricular origin. Rarely a P wave, which is submerged in the Q-R-S or T wave, is present, owing to a retrograde auricular contraction; but the pause following this type of ventricular extrasystole is not compensatory (fig. 28).

The Q-R-S complex is premature and anomalous. It is usually diphasic, slurred, notched and of high amplitude (high voltage). The Q-R-S interval is increased in width. The degree of deformity of the Q-R-S complex depends on the site of the ectopic focus; if near the normal pathways, the form of the wave varies less from the normal Q-R-S; if more remote, the resulting complex is more markedly abnormal. The extrasystole may be markedly, moderately or slightly premature. If but slightly premature, it occurs at almost the time when the normal Q-R-S complex is due after the P wave, and there is a blending of the normal and and abnormal complex as they meet. If moderately

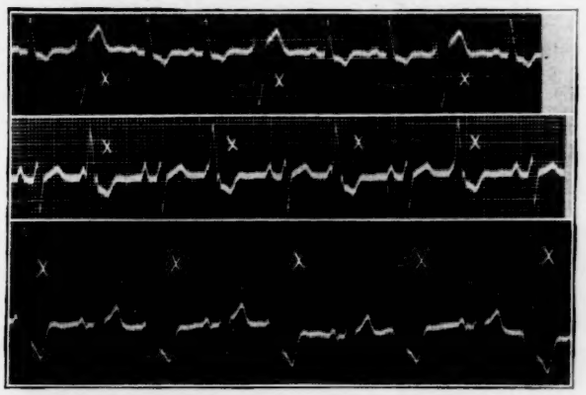


Fig. 36.—Right ventricular extrasystoles from a single focus and having a rhythmic appearance. Pulsus trigeminus in lead 1. Pulsus bigeminus in leads 2 and 3.

early, the premature Q-R-S complex may fall with and bury the normal P wave. The exact site of the irritable or refractory area in the ventricle (ectopic focus), cannot be discovered, but the particular ventricle of origin can be determined according to the evidence of axis deviation present. The site of the ectopic ventricular focus cannot be satisfactorily determined by study of lead 2 alone.

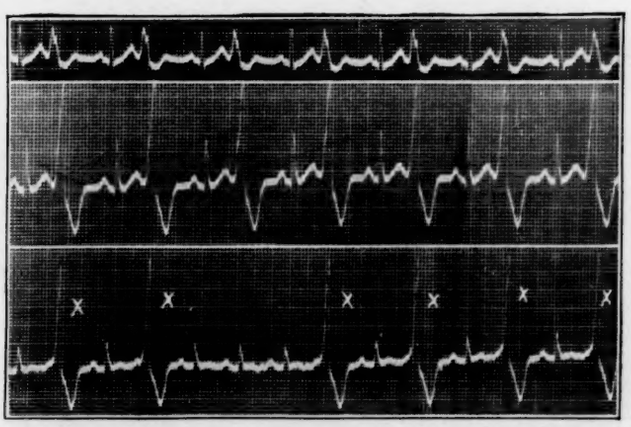


Fig. 37.—Idioventricular extrasystoles from a single focus and having a rhythmic appearance. Pulsus bigeminus in leads 1 and 2, with irregular occurrence in lead 3.

The T wave is usually large, frequently peaked and always of opposite direction to the main deflection of the Q-R-S complex, in the lead showing the largest Q-R-S deflection. Infrequently, the ventricular premature beat may be interpolated between two normal

beats (fig. 38). This usually occurs when the heart's action is slow and the extrasystole occurs early in diastole. Here the extrasystole terminates before the next rhythmic auricular impulse arrives and hence it does not replace a normal ventricular event but falls more or less evenly between two normal beats. The premature beat here becomes a true extrasystole. The extrasystole here exhibits the same characteristic abnor-

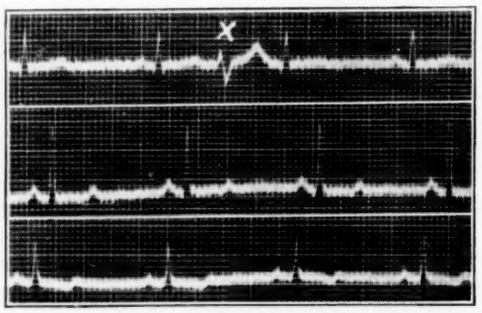


Fig. 38.—Interpolated ventricular extrasystole. Shows an anomalous beat interpolated at *x* between normal cardiac cycles. The former arose from a ventricular focus and the corresponding ventricular complex is abnormal, since the excitation wave causing it pursued an abnormal course in the ventricular muscle. This type of premature beat is a true extrasystole. Auricular extrasystoles are not interpolated. Myocardial damage, $Q\text{-}R\text{-}S_{1, 2, 3}$ slurred. $T_{1, 2}$ low voltage. T_3 diphasic.

malities of the Q-R-S complex, as already described. There is no fundamental disturbance of the dominant (auricular) cardiac rhythm. If the extrasystole falls very late in diastole, the disturbance in ventricular rhythm is slight. The results of the auricular and the

Fig. 39.—Ventricular extrasystoles of rhythmic occurrence, giving rise to a pulsus bigeminus. They appear at first to be interpolated, but are not, since P waves are superimposed on all the abnormal Q-R-S complexes.

abnormal ventricular focus are superimposed on one another, traces of each being present (figs. 24 to 39, 137, 139, 142 and 144).

(To be continued)

Increasing Importance of Pharmacology.—At no period has treatment by means of drugs been on so sure a foundation or so amply justified. In spite of the apathy towards pharmacology in this country at the moment, it is quite certain that it will become an increasingly important branch of medicine.—Gunn, J. A.: Remarks on the Outlook of Research in Therapeutics, *Brit. M. J.* **2**:390 (Aug. 27) 1932.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

LIVER EXTRACT-PARKE, DAVIS & CO.—A light brown granular powder representing a water-soluble fraction of mammalian liver, which contains the substance effective in the treatment of pernicious anemia. It is supplied in vials containing an amount of powdered extract (3 to 3.5 Gm.) obtained from 100 Gm. of fresh liver.

Actions and Uses.—Liver extract-Parke, Davis & Co. is used in the treatment of pernicious anemia. See Liver and Stomach Preparations, New and Nonofficial Remedies, 1932, p. 246.

Dosage.—The maximum daily dose needed to induce remission in severe relapse of pernicious anemia is the contents of from four to six vials, to be continued within this range until the red blood cells and hemoglobin have reached normal. The contents of from two to four vials daily constitute the maintenance dose.

Manufactured by Parke, Davis & Co., Detroit. No U. S. patent or trademark.

Vials Liver Extract-Parke, Davis & Co.

Fresh livers from edible animals are finely minced and macerated for one-half hour with cold water having a *p*H of 5. The mixture is then heated at about 85 C. and filtered. The filtrate is reduced to a small volume at a low temperature, in vacuo. Alcohol is added until a concentration of 70 per cent has been reached; the mixture is again filtered, evaporated, dried in vacuo and powdered. A representative sample of each lot is tested on known cases of pernicious anemia under the supervision of the Thomas Henry Simpson Memorial Institute, University of Michigan, Ann Arbor, Mich. No product is released for use until approved by the Thomas Henry Simpson Memorial Institute.

LIVER EXTRACT (INTRAMUSCULAR)-PARKE, DAVIS & CO.—A sterile aqueous solution, containing the nitrogenous nonprotein fraction G of Cohn et al. obtained from fresh mammalian liver. Each cubic centimeter contains the active material obtained from 5 Gm. of liver.

Actions and Uses.—Liver extract (intramuscular)-Parke, Davis & Co. is used in the treatment of pernicious anemia. See Liver and Stomach Preparations, New and Nonofficial Remedies, 1932, p. 246.

Dosage.—Two cc. daily is usually sufficient to induce remission in severe relapse of pernicious anemia. This dosage is repeated until the red blood cells and hemoglobin have reached normal. The maintenance dose is 2 cc. every two or three days.

Manufactured by Parke, Davis & Co., Detroit. No U. S. patent or trademark.

Glaseptic Ampoules Solution Liver Extract-P. D. & Co. (Intramuscular) 2 cc.: Each cubic centimeter contains the active material obtained from 5 Gm. of liver.

To prepare liver extract (intramuscular) Parke, Davis & Co., liver extract-Parke, Davis & Co. is dissolved in distilled water at a concentration of about 3 Gm. for each 20 cc. of solution. The solution is treated with a silicate of aluminum, sodium and calcium to eliminate toxic nitrogenous substances, filtered through Berkefeld filters and filled into ampules. The ampules are sterilized and a representative sample of each lot tested for sterility. A representative sample of each lot is tested on known cases of pernicious anemia under the supervision of the Thomas Henry Simpson Memorial Institute, University of Michigan, Ann Arbor, Mich. No product is released for use until approved by the Thomas Henry Simpson Memorial Institute.

BRUCELLA MELITENSIS VACCINE (See THE JOURNAL, Feb. 6, 1932, p. 480).

Jensen-Salsbery Laboratories, Inc., Kansas City, Mo.

Undulant Fever Bacterial Vaccine.—A heat killed suspension in physiologic solution of sodium chloride of Brucella melitensis, var. abortus (bovine type, 50 per cent; porcine type 50 per cent), preserved with 0.5 per cent of phenol. Each cubic centimeter contains six billion killed organisms. The product is prepared by growing Brucella abortus organisms on nutrient agar for forty-eight hours; the growth is washed off with physiologic solution of sodium chloride and maintained at a temperature of 60 C. for forty minutes. The usual sterility tests prescribed by the U. S. government are made. Safety tests are made on the stock vaccine by the inoculation of rabbits. No potency tests are made. Purity of cultures is determined by the study of colony formation, carbohydrate reactions, and agglutination test with specific serum. The product is marketed in packages of six 2 cc. vials.

Dosage.—Initially, 0.25 cc., repeated daily with increase of 0.25 cc. until 1 cc. is given; this is continued according to the indications of the case. After a maximum of seven doses has been given, a period of from two to three weeks should be permitted to elapse, after which, treatment may be resumed should it be required.

Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

LA FRANCE FLOUR (BLEACHED)

Manufacturer.—Morten Milling Company, Dallas, Texas.

Description.—An "all purpose" hard and red winter wheat short patent flour; bleached.

Manufacture.—Selected hard and red winter wheat is cleaned, washed, tempered and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended and bleached with a mixture of nitrogen trichloride (1/14 to 1/9 oz. per 196 pounds of flour).

Analysis (submitted by manufacturer).—

	per cent
Moisture	12.0 –13.5
Ash	0.36– 0.40
Fat (ether extraction method)	0.8 – 1.3
Protein (N × 5.7)	9.5 –10.5
Crude fiber	0.3 – 0.5
Carbohydrates other than crude fiber (by difference)	76.6 –73.8

Calories.—3.5 per gram; 99 per ounce.

Claims of Manufacturer.—The flour is especially designed for general home baking uses.

GORMAN'S RAISIN BREAD

Manufacturer.—Gorman's Bakery, Central Falls, R. I.

Description.—A raisin bread made by the straight dough method (THE JOURNAL, March 12, 1932, p. 889); prepared from patent flour, water, raisins, lard, condensed skim milk, yeast, sucrose, salt and a yeast food containing calcium sulphate, ammonium chloride, potassium bromate and sodium chloride.

Analysis (submitted by manufacturer).—

Raisins....3 oz.	per lb. per cent
Moisture (entire loaf)	33.3
Ash	1.9
Fat	3.1
Protein (N × 6.25)	10.1
Crude fiber	0.7
Carbohydrates other than crude fiber (by difference)	50.9

Calories.—2.7 per gram; 77 per ounce.

Claims of Manufacturer.—The bread conforms to the U. S. Department of Agriculture standard and definition for raisin bread.

FORT HAMILTON BRAND GOLDEN TABLE SYRUP

(Corn Syrup and Refiner's Syrup)

Manufacturer.—Union Starch and Refining Company, Columbus, Ind.

Distributor.—E. H. Frechtling Company, Hamilton, Ohio.

Description.—This product is the same as Pennant Golden Table Syrup (THE JOURNAL, Jan. 30, 1932, p. 403).

McCORMICK'S RELISH SPREAD

Manufacturer.—McCormick and Company, Baltimore.

Description.—A mix of McCormick's mayonnaise (refined corn oil, egg yolk, distilled vinegar, salt, sucrose, mustard and paprika) and McCormick's sweet chopped pickle relish (lactic acid fermented cucumbers, cauliflower and onions, mixed with sucrose, distilled vinegar and peppers).

Manufacture.—For the preparation of the sweet pickle relish ingredient, the mature vegetables mentioned are placed in salt brine; lactic acid fermentation ensues, after completion of which the drained vegetables are washed with water, allowed to stand in cold water until the salt is largely leached out, run through chopping machines, mixed with sucrose, distilled vinegar and peppers, and aged for three or four weeks, when the pickle relish is ready for use.

McCormick's Mayonnaise (THE JOURNAL, July 30, 1932, p. 390) and the pickle relish are mixed in definite formula proportions and packed in glass jars.

Analysis (submitted by manufacturer).—

	per cent
Volatile matter (100 C.) (principally water)	36.5
Total ash	1.6
Ash, insoluble in hydrochloric acid	trace
Ash, soluble in water (principally salt)	1.5
Nonvolatile ether extract (fixed oil)	44.3
Protein (N × 6.25)	2.0
Sucrose (copper reduction method)	8.4
Crude fiber	0.5
Acidity, as acetic acid	1.3
Lipoid P_2O_5	0.04
Total P_2O_5	0.05
Carbohydrates other than crude fiber (by difference)	15.1

Calories.—4.7 per gram; 133 per ounce.

Claims of Manufacturer.—As a relish for sandwiches, salads and table dishes.

BLUE RIBBON BRAND UNSWEETENED EVAPORATED MILK

Manufacturer.—Amboy Milk Products Company, Amboy, Ill.

Distributor.—Oakford & Fahnestock, Peoria, Ill.

Description.—This canned unsweetened evaporated milk is the same product as Amboy Evaporated Milk (THE JOURNAL, May 7, 1932, p. 1655).

GENERAL COMMITTEE DECISIONS

THE COMMITTEE ON FOODS AUTHORIZES THE PUBLICATION OF THE FOLLOWING GENERAL COMMITTEE DECISIONS ADOPTED FOR ITS OWN GUIDANCE AND THAT OF FOOD MANUFACTURERS AND ADVERTISING AGENCIES ON FOOD ADVERTISING.

RAYMOND HERTWIG, Secretary.

MISLEADING VAGUE CLAIMS SUCH AS "RECOMMENDED BY PHYSICIANS, MEDICAL AND HEALTH AUTHORITIES, NURSES, DIETITIANS, HOSPITALS, AND SANATORIUMS" AND EQUIVALENT STATEMENTS FOR SPECIFIC FOODS.

Vague claims of recommendation, approval or use by physicians, health or medical authorities, nurses, dietitians, hospitals and sanatoriums for specific foods and statements of similar import in food advertising are misinformative and convey misleading implications of unique nutritional or therapeutic values, or that these professions or institutions as bodies have specially investigated and passed scientific or professional judgment on the particular products, which is not true to fact. Proper and correct explicit statements of special uses for or values of individual foods, or statements based on special studies by recognized authorities are permissible.

VAGUE USE OF TERMS "BALANCED" OR "SCIENTIFICALLY BALANCED"

The terms "balanced" and "scientifically balanced" as applied to individual foods or to their carbohydrate, protein, fat, vitamin and mineral content are vague in meaning, are usually unsupported by fact, and are misleading by implying that the respective nutritional elements are naturally or purposefully proportioned one to another to provide special or unique nutritional values which adapt the foods to specific uses. Claims that individual foods are superior because of assumed "balanced" composition are misleading for the reason that no one food is expected to be taken alone or to compose the complete diet and, when admixed with other foods, any assumed or actual "balance" is destroyed in unknown ways.

Presumably the term "balanced" as used in advertising for any one food is intended to signify either that it is a complete diet containing ideal proportions of proteins, minerals, vitamins, fats and carbohydrates for optimum nutrition or that two or more of its food essentials content are ideally proportioned to meet optimum nutritional needs. The intended significance, whatever it may be, should be explicitly stated; however, such statements shall be used only if correct for the food as used in the diet. The term "balanced" shall be used only in properly informative statements where its meaning is plainly evident and free of misleading implications.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

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SATURDAY, OCTOBER 8, 1932

NEW FORMS OF MEDICAL PRACTICE

Previous to the onset of the present economic depression, numerous experiments in changing the nature and methods of medical practice had been evolved and were in operation. In foreign countries panel systems, *krankenkassen* and other forms of state medicine had been introduced. In our own country such modifications in medical practice as the group, the university clinic, the cooperative laboratory, the hospital as a center, and similar organizations and institutions had begun to have their effect on medical practice and on public opinion in relation thereto. Moreover, agitation and propaganda were stimulating new efforts in this direction, presumably always with altruistic motives. Then came the "crash." It acted like a ferment in stimulating new ventures which promised either definite or large returns to physicians who would permit indirect marketing of their services.

Elsewhere in this issue appears a brief outline concerning two corporations established to sell the services of physicians to the public on a large scale. The records of those interested in the promotion indicate that these schemes are not to be taken lightly. If the statements in the charters are to be accepted as anything more than legal verbiage and promotional license, it is proposed to operate these corporations on a national scale and, by such operation, to disrupt seriously established forms of medical practice and the stability of medical organizations. It is rumored, and for the rumor there is more than a modicum of evidence, that a considerable number of physicians have already indicated their willingness to participate in this scheme.

The ideals of established medicine in this country have been clearly stated again and again. Opposed to those ideals are attempts to commercialize medical practice through exploitation of the services of physicians by corporations which consider medical ethics merely a hindrance. Such corporations do not hesitate to evade the obstruction, soliciting patients by newspaper publicity, the radio and other methods of indirect advertising and also by direct announcements in the press.

Some of the leaders in the field of social service whose experience should have taught them better do not hesitate to encourage these promoters in their plans. The scheme proposed by J. G. Berkowitz and his associates has a tacit endorsement in the public and printed utterances of E. A. Filene and of Michael M. Davis. Notwithstanding any of the arguments that may be offered in support of such plans, they strike at the very basis of sound medical practice, they will interfere seriously with the advancement of medical science and they will hasten, if not precipitate, the coming of government schemes of medical practice.

The physicians who have considered seriously the acceptance of full-time salaried positions with corporations of business men who propose to exploit such service for profit may consider well what happens when economic stress, personal relationships, differences of opinion as to scientific methods, or similar complications necessitate separation of the employed from the employer. The employer of the physician in private practice is his patient. In times of stress these patients may not be able to pay him as much as previously, perhaps not at all. During the present emergency most physicians are continuing to care for their patients and are waiting patiently for the period when a return of prosperity will permit the settling of debts. These physicians still have their practices. The physician employed by a corporation has no practice of his own. The patients are not his patients—they are the patients of the clinic, institute, group or other corporation that employed him. When he severs his connection with his employer, for any of the reasons that have been mentioned, he must remove most frequently to another community, there to begin as he might have begun years before, to develop the relationships with individual patients that have been the very basis of medical practice since the beginning of time. And what of the patient? In the clinic, institute or group lies the record of his medical care, but such a record is far removed from the human understanding that is fundamental between patient and physician. Michael Davis cites as one of the qualities which patients may rightly expect in medical service "a sense of personal responsibility for each patient on the part of the physician and a sense of individual attention from the physician on the part of each patient." Is there the slightest reason to believe that any corporation of business men vending medical service through salaried physicians will ever be able to meet this expectation?

It has been for years the policy of the American Medical Association that the interest of the public is first. THE JOURNAL opposes such schemes not only because they are bad medical practice but also because they must inevitably result in an inferior type of medical practice for the people of this country.

The laws of the state of Delaware and of Illinois are quite clear in opposing the practice of law or of

medicine by corporations. The suitable committees of the state medical societies in these states may well consider carefully whether or not it is advisable to set in motion at once the necessary legal machinery to oppose the establishment of such corporations as being directly opposed to the laws of the state.

RELATION OF AGE AND NUTRITIVE CONDITION TO PERFORMANCE

There are many factors influencing the complex behavior of man. In an organism in which activity is so largely conditioned through the higher nerve centers, the separation of factors and the appropriate allocation to them of influence on behavior becomes extremely difficult. Thus the investigator has turned to some of the commonly available experimental animals for an answer, to the questions concerning the effect of both intrinsic and extrinsic factors on behavior. Not only are their action patterns apparently less complicated than are those of man, but in certain species the complete life cycle is short and such environmental conditions as temperature, humidity and food can readily be controlled. The results of an extensive study of the relation of age and nutritive condition to performance of the albino rat have recently been reported by Anderson and Smith,[1] and their observations, based on a statistical analysis of the data, are worthy of comment.

Several measures of performance were employed: a rotating cage from which activity was estimated by the number of revolutions per unit of time; a simple maze without culdesacs and a more complex maze which provided tests for "learning ability," the measures being based on both the time required to traverse the maze and the number of errors made in the process; a problem box in which the animal learned to operate a spring door opening into the food chamber and in which the time required to open the door was the criterion of efficiency. Three different nutritional groups of rats were used. One was given a complete diet in unlimited amounts; another was given unrestricted quantities of a ration containing the protein gliadin as the only source of nitrogen and thus providing too little lysine to permit growth; and a third group was maintained at the same retarded body weight as the second group by underfeeding with an adequate food. Within these nutritional groups, the experimental animals were given the behavior tests at different ages. At 31 days of age one normal group was tested; at 71 days of age one group in each of the three nutritive classes was tested; at 111 days of age three other groups were examined; and at 151 days of age three further groups were tested.

The authors point out that the arrangement of experimental groups permitted various comparisons, such as the effect of age within each nutritional class, the influence of various lengths of time of stunting, and the result of limiting growth by different methods at a given age and comparison with normal animals of either the same body weight or the same age. At the outset it was apparent that the rats lacking either the indispensable amino-acid lysine or sufficient energy for growth differed in their behavior from the normal control animals. There was a striking difference in activity, the stunted animals at all ages being more active than the well fed rats. Again, the groups in which the amount of food (calories) was restricted were definitely more active than those in which the experimental ration lacked lysine, although the nutritional deficiency produced the same retarded body weight in the two cases. The interpretation of these observations is not simple. It appears that the increased activity of the stunted rats is not directly proportional to the length of time during which the development is retarded; the stimulus to increased activity, therefore, is not entirely to be related to motivation. The data indicate, further, that within the different nutritional groups, each with its characteristic record, the activity decreases with age. It appears that, irrespective of adequacy of nutrition, older rats are less active than younger ones.

The records of the various nutritional groups in the mazes bring out the surprising fact that the animals on inadequate rations excelled the well fed control rats in speed of solving the situation presented by both the simple and the complex maze. Correlated with greater speed of running the maze was a greater number of errors made by the stunted rats than by the normal animals. The effect of age was to increase the time required to learn to run the maze in all the nutritional groups. However, the rats that were well fed made fewer errors as they grew older, whereas this improvement did not take place in the stunted groups. These results, taken together with others reported by Anderson and Smith, point to the conclusion that in measures of performance where speed is the criterion, superiority lies with youth, but in situations where accuracy and precision are demanded, age is preferred. This, after all, seems to be but experimental corroboration of a well known fact which at the present time might well receive somewhat more consideration.

The greater activity of the underfed rats as well as the increased speed in solving a problem has its counterpart in the frequent observations of animal husbandrymen with farm animals; and there is also on record an account [2] of greater intellectual acumen among a group of undernourished school children than among those in better circumstances. On the other hand, the graphic account of the effects of undernutrition given by Lusk [3] leaves no doubt of the widespread deleterious results of extended restriction in the normal food supply on the behavior of man. It is likely that the

1. Anderson, J. E., and Smith, A. H.: J. Comp. Psychol. **13**: 409 (June) 1932.

2. Hunt, J. L.; Johnson, B. J., and Lincoln, E. M.: Health Education and the Nutrition Class, Bureau Education Expts., New York, 1921.

3. Lusk, Graham: Physiol. Rev. **1**: 523, 1921.

difference between the observations on experimental animals and those on human subjects are largely due to the difference in complexity of the behavior pattern of the two species. It would appear that experimental studies with a relatively simple plan as outlined are an obligate step in the interpretation of human behavior.

GALLSTONES IN LOWER ANIMALS

Some time ago it was pointed out in THE JOURNAL [1] that there is a striking difference between man and the ordinary laboratory animals as far as the occurrence of gallstones is concerned. The point was made, furthermore, that experimental attempts to produce cholelithiasis in these species had been uniformly futile up to that time and that this failure had retarded progress in clarifying the etiology of gallstone formation in human patients. The question of difference in the physiology of the biliary apparatus still commands considerable interest. As the gallbladder of certain species of mammals does not empty after food is taken, a recent study of Boyden [2] is worthy of comment. He employed monkeys (Macacus rhesus) and in three normal males observed extremely rapid evacuation of the gallbladder after a meal rich in fat. The first animal emptied three fourths of the contents of the viscus in thirty-six minutes, the secondary monkey showed the same loss of gallbladder contents in twenty-four minutes, and the third evacuated most of its iodized oil in twenty-seven minutes. It is stated that "nothing comparable to this initial rate of emptying has been found in any other species except man and definitely establishes the supremacy of the primate gallbladder."

A variety of procedures has been employed in the effort to induce the formation of typical cholesterol calculi. According to a summary by Hospers,[3] previous investigators have depended on five general methods: introduction of foreign substances into the gallbladder, production of stasis in the gallbladder, infection of the organ either directly or through the systemic circulation, induction of extended hypercholesterolemia, and production of deficiency in vitamin A. When foreign bodies have been used, even when combined with infection, the particles have at best been covered only with a layer of pigment. Other "calculi" obtained have consisted either of pigment with or without calcium carbonate, or of organic matter without appreciable cholesterol. In his own study, Hospers combined hypercholesterolemia with direct infection of the gallbladder in rabbits but, despite the frequent presence of cholesterol crystals in the bile, was likewise unable to demonstrate the presence of cholesterol stones in the gallbladder or ducts. This review of former attempts to produce biliary calculi as well as more recent efforts indicates that gallstone formation in man depends on factors or conditions not yet recognized by investigators.

Studies that may prove to have a bearing on the question under discussion have lately been reported by Andrews and his co-workers.[4] Convinced that the integrity of a bile salts-cholesterol complex is important in preventing the precipitation of cholesterol of bile, the Chicago investigators have shown that the infected gallbladder with the ducts intact absorbs bile salts and concentrates the cholesterol to the point of precipitation. Similar results were obtained when pancreatic juice was introduced into the gallbladder, this fluid apparently increasing the permeability of the walls of the viscus for bile salts. From the available evidence, it is apparent that the etiology of gallstones is not associated exclusively with any one of the various types of interference with the normal functioning of the gallbladder. The problem challenges the experimental ingenuity as well as the persistence of the investigator, but its importance justifies the effort.

1. Etiology of Gallstones, editorial, J. A. M. A. **97**: 709 (Sept. 5) 1931.
2. Boyden, E. A.: Proc. Soc. Exper. Biol. & Med. **29**: 1104, 1932.
3. Hospers, C. A.: Experimental Production of Gallstones, Arch. Path. **14**: 66 (July) 1932.
4. Dostal, L. E., and Andrews, Edmund: Proc. Soc. Exper. Biol. & Med. **29**: 1100 (June) 1932. Andrews, Edmund; Goff, M., and Hrdina, L., ibid., p. 1091.

Current Comment

CONVALESCENT SERUM IN THE TREATMENT OF POLIOMYELITIS

The status of the treatment of preparalytic cases of acute poliomyelitis seems to require clarification. Although prevailing clinical opinions as to the efficiency of the treatment have been optimistic, few investigations have been adequately controlled. In two recent reports of controlled therapeutic tests, the evidence provided is not encouraging. Kramer, Aycock, Solomon and Thenebe [1] record eighty-two cases about equally divided between those who received convalescent serum and those who did not. They did not accept for the study any case of illness which had lasted more than three days on admission to the hospital or any case which at that time showed any paralysis or muscular weakness. In all these cases the physical and spinal fluid conditions characteristic of preparalytic poliomyelitis were present. Convalescent serum was given to about half of this group immediately on admission to the hospital, and additional doses were given from eight to twelve hours apart. Careful muscle examinations were made on admission, again after from twenty-four to forty-eight hours, and again before discharge from the hospital. Paralysis developed in 51 per cent of the eighty-two patients, and two deaths from respiratory paralysis occurred in the treated group. The Boston investigators concluded that their study offered no statistical evidence that convalescent serum is effective. The second report is that of Park,[2] published in the symposium on polio-

1. Kramer, S. D.; Aycock, W. L.; Solomon, C. I., and Thenebe, C. L.: Convalescent Serum Therapy in Preparalytic Poliomyelitis, New England J. Med. **206**: 432 (March 3) 1932.
2. Park, W. H.: Therapeutic Use of Antipoliomyelitis Serum in Preparalytic Cases of Poliomyelitis, J. A. M. A. **99**: 1050 (Sept. 24) 1932.

myelitis in a recent issue of THE JOURNAL. Together with members of the poliomyelitis committee of the New York Academy of Medicine and his associates in the municipal hospitals, Park studied a total of 927 preparalytic cases of poliomyelitis, 519 of which were treated with convalescent serum; 408 patients were not given serum. The health department supplied the serum. The amount of paralysis present, if any, was noted at the end of three weeks and again after from five to six months. While the treated group of cases cared for by the pediatricians were on the average classified as a trifle more severe, this difference was not apparent in the large number of untreated hospital patients used for comparison. Paralysis developed in 19.6 per cent of the cases treated with convalescent serum and in 11 per cent of the untreated cases. The mortality rate among the treated cases was 3.8 per cent and among the untreated cases 0.9 per cent. The results of this study by a group of pediatricians and public health experts likewise does not afford statistical proof that the use of serum has any value in cases in which the cells of the central nervous system are already involved. The fact that the two controlled therapeutic tests gave similar results suggests that heretofore too much confidence has been placed in the treatment with convalescent serum. Nevertheless, the optimistic opinions expressed by others following uncontrolled observations cannot be disregarded. The need now is for additional evidence based on controlled studies which take into account the variants that make the problem complex. In the meantime, it is of great importance to the public, as well as to the patients, that cases of poliomyelitis be diagnosed in the preparalytic stage, so that they may be isolated.

Medical Economics

NEW FORMS OF MEDICAL PRACTICE

"National Medicine, Inc.," and "United Medical Service, Inc."

Following the end of the World War, a physician named J. G. Berkowitz returned to Chicago and secured from a number of millionaires and philanthropists the use of their names for prestige, and sufficient funds for the establishment of an institution known as the Public Health Institute, a corporation not for profit, which proposed to treat venereal disease at prices lower than generally prevailed in the private practice of medicine. The motive was clearly defined as an attempt to make an impression on this social problem. Some years previously the advertising quacks in the field of venereal diseases had been driven out of Chicago by a campaign conducted by the Chicago *Tribune*. The Public Health Institute entered on an extensive advertising campaign, using newspapers, street car cards and posters in lavatories to develop its clientele. The primary appeal in such advertising was price, convenience, confidence, secrecy and fear.

The Public Health Institute is devoted to the mass treatment of gonorrhea and syphilis and their complications. A separate laboratory was established which was able to do laboratory tests at minimal figures because of the vast number of tests regularly performed. The purchase of medicaments in quantities brought about low prices. However, careful surveys indicated that the treatment offered was not in every aspect such as could be endorsed by competent authorities in the care of these conditions. Moreover, social studies indicated that the advertising and methods of promotion must be in the end detrimental to the scientific practice of medicine.

As a result, a medical advisory committee was formed which modified the nature of the advertising. The new advertising copy recognized that the private practice of medicine was superior to that offered in any institution of this character and suggested that patients either consult their own physician or go to the Institute. Furthermore, the primary appeal of price and the questions of fear were subdued. Up to the time when the medical advisory committee was established the Institute had been able, through its profits, to endow research to the extent of well-nigh $100,000 and to put aside a reserve approximating $1,000,000. The change in the nature of the advertising copy and the coming of the economic depression brought about a definite curtailment in the number of persons applying for treatment and in the amounts they were able to pay, so that almost immediately the operations began to show a deficit.

During the operation of the Institution it occurred to its director, Dr. J. G. Berkowitz, who is recognized as a master of detail and business practice, if not as a noted physician, to establish a department for electrocardiography. Practically all patients with syphilis were submitted to such an examination, for which they paid a minimal fee. Nevertheless, this department showed a large profit, perhaps because many persons were given the examinations who did not require them. The coming of the medical advisory committee resulted in the abolition of this type of exploitation.

In 1931 Dr. Berkowitz, the director, resigned and more recently the medical advisory committee also resigned. Following the resignation of Berkowitz, rumors promptly developed indicating that he proposed to establish, as a corporation for profit, an organization of the type of the Public Health Institute, which, however, would not be limited to venereal disease but would instead cover the entire field of medical practice.

UNITED MEDICAL SERVICE, INC.

A corporation to be called United Medical Service, Inc., was organized as an Illinois corporation and chartered, Dec. 15, 1930, with an authorized capital stock of $40,000. Associated according to the charter in this incorporation were Charles R. Wiley, M.D., a councilor of the Chicago Medical Society, 2924 Washington Boulevard, Chicago; John W. Harned, Jr., M.D., 1400 Lake Shore Drive, Chicago, and Roy W. Kline, M.D., 4051 West North Avenue, Chicago.

The object for which United Medical Service, Inc., was formed was stated to be:

(1) To promote individual and public health through the study, prevention and treatment of disease, and research work in connection therewith; (2) to bring complete medical and surgical service within the financial reach of all; (3) the education of the public in all matters pertaining to the prevention and treatment of disease and to print, bind, publish and sell books and printed matter for that purpose; (4) the purchase, manufacture and sale of drugs, chemicals, instruments, equipment and supplies necessary to the accomplishment of the objects of the corporation; (5) the establishment in any lawful manner of dispensaries, clinics, hospitals, sanatoriums, laboratories, and other buildings and offices, necessary for the treatment of all medical, surgical and dental ailments, and physical and mental infirmities; (6) to use its facilities and establish schools for the education of physicians, interns, medical students, nurses and all others engaged in work embraced within the scope of the corporate purposes; and (7) to cooperate with, and make available to, existing medical organizations, physicians, individuals and others, all the facilities of the corporation.

The names and addresses of the subscribers to the capital stock and the amounts subscribed and paid in by each were as follows:

Name and Address	No. of Shares	Amount Subscribed	Amount Paid in
Dr. Charles R. Wiley, 2924 Washington Blvd., Chicago	1	$100	$100
Dr. Roy W. Kline, 4051 W. North Ave., Chicago	1	100	100
Dr. J. W. Harned, 3215 W. North Ave., Chicago	1	100	50
Dr. M. J. Freeman, 2257 W. Madison, St., Chicago	1	100	50
Dr. Julius Auerbach, 1931 W. 22d St., Chicago	1	100	50
Dr. Harry Noskin, 1618 W. Chicago Ave., Chicago	1	100	50
Dr. George W. Funck, 25 E. Washington St., Chicago	1	100	70
Dr. Guy L. Wagoner, 4753 Broadway, Chicago	1	100	10
Dr. Petra M. Dahl, 4264 Milwaukee Ave., Chicago	1	100	10
Dr. W. Lloyd Kenny, 3215 W. North Ave., Chicago	1	100	10
	10	$1,000	$500

The names and addresses of the first board of directors was stated to be as follows:

Name and Address	Term for which Elected
Dr. Charles R. Wiley, 2924 Washington Blvd., Chicago.....	One year
Dr. Roy W. Kline, 4051 W. North Ave., Chicago.....	One year
Dr. J. W. Harned, 3215 W. North Ave., Chicago.....	One year
Dr. W. Lloyd Kenny, 3215 W. North Ave., Chicago.....	One year
Dr. George W. Funck, 25 E. Washington St., Chicago.....	One year
Dr. Petra M. Dahl, 4264 Milwaukee Ave., Chicago.....	One year
Dr. G. L. Wagoner, 4753 Broadway, Chicago.....	One year

NATIONAL MEDICINE, INC.

Little seems to have been done with this organization until recent months. Then on June 27, 1932, three persons residing in Wilmington, Delaware, incorporated an institution known as "National Medicine, Inc.," having as a resident agent the Corporation Trust Company of Wilmington. The charter of National Medicine, Inc., states its objects as follows:

To promote individual and general public health through education and research, and the study, treatment and prevention of all human ailments:

(*a*) By making accessible complete medical, surgical and dental services by legally licensed practitioners and within the financial reach of all, and/or

(*b*) By establishing and providing public and private places for such services, and dispensaries, clinics, hospitals, sanitariums, laboratories, buildings, offices and other facilities necessary for the treatment by legally licensed practitioners of all medical, surgical and dental ailments and physical and mental infirmities, and to carry on all the work of the corporation; and/or

(*c*) By making gifts, donations and endowments, as determined upon by the board of directors, to institutions, corporations and individuals in development and advancement of the purposes aforesaid.

To carry on the education of the public in all matters pertaining to the knowledge of the prevention and treatment of human ailments through newspapers, periodicals, pamphlets, books and other publications and literature, and to print, bind, publish and sell all printed matter necessary for this purpose.

To purchase, sell, manufacture, handle, distribute and deal in and with drugs, chemicals, medicines, remedies, pharmaceutical preparations, instruments, equipment and supplies necessary to the accomplishment of the objects of the corporation.

To use its facilities and establish schools for the education of physicians, interns, medical students, nurses and all others engaged in work within the scope of its corporate purposes.

To make contracts with individuals or corporations, and to make available all the facilities of the corporation, and to cooperate with existing medical organizations, physicians, individuals and others.

To manufacture, purchase or otherwise acquire, own, mortgage, pledge, sell, assign and transfer, or otherwise dispose of, and to invest, trade, deal in and deal with goods, wares, merchandise, commodities, articles of commerce and personal property of every class and description.

To acquire, hold, use, sell, assign, lease, grant licenses in respect of, mortgage or otherwise dispose of letters patent of the United States or any foreign country, patent rights, licenses and privileges, inventions, improvements and processes, copyrights, trade-marks and trade names, relating to or useful in connection with any business of this corporation.

To acquire, and pay for in cash, stock or bonds of this corporation or otherwise, the good will, rights, assets and property, and to undertake or assume the whole or any part of the obligations or liabilities of any person, firm, association or corporation.

To guarantee, purchase, hold, sell, assign, transfer, mortgage, pledge or otherwise dispose of shares of the capital stock of, or any bonds, securities or evidences of indebtedness created by any other corporation or corporations organized under the laws of this state or any other state, country, nation or government, and while the owner thereof to exercise all the rights, powers and privileges of ownership, including the right to vote thereon.

To enter into, make and perform contracts of every kind and description with any person, firm, association, corporation, municipality, county, state, body politic or government or colony or dependency thereof.

To borrow or raise moneys for any of the purposes of the corporation and, from time to time, without limit as to amount, to draw, make, accept, endorse, execute and issue promissory notes, drafts, bills of exchange, warrants, bonds, debentures and other negotiable or nonnegotiable instruments and evidences of indebtedness, and to secure the payment of any thereof and of the interest thereon by mortgage upon or pledge, conveyance or assignment in trust of the whole or any part of the property of the corporation, whether at the time owned or thereafter acquired, and to sell, pledge or otherwise dispose of such bonds or other obligations of the corporation for its corporate purposes.

To purchase, hold, sell and transfer the shares of its own capital stock; provided it shall not use its funds or property for the purchase of its own shares of capital stock when such use would cause any impairment of its capital except as otherwise permitted by law, and provided further that shares of its own capital stock belonging to it shall not be voted directly or indirectly.

To have one or more offices, to carry on all or any of its operations and business and, without restriction or limit as to amount, to purchase or otherwise acquire, hold, own, mortgage, sell, convey, or otherwise dispose of real and personal property of every class and description in any of the States, Districts, Territories or Colonies of the United States, and in any and all foreign countries, subject to the laws of such State, District, Territory, Colony or Country.

In general, to carry on any other business in connection with the foregoing, to have and exercise all the powers conferred by the laws of Delaware upon corporations formed under the act hereinafter referred to, to do any or all of the things hereinbefore set forth to the same extent as natural persons might or could do, and to do all and everything necessary or convenient for the accomplishment of any of the purposes, objects or powers above mentioned or connected therewith or incidental thereto.

The objects and purposes specified in the foregoing clauses shall, except where otherwise expressed, be in nowise limited or restricted by reference to, or inference from, the terms of any other clause in this certificate of incorporation, but the objects and purposes specified in each of the foregoing clauses of this Article shall be regarded as independent objects and purposes.

This company proposes to issue 100,000 shares of stock, 50,000 shares to be sold at $5 each as preferred stock, holders of which are to receive dividends at the rate of 6 per cent a year on the par value thereof before any dividends shall be declared for the common stock. Thereafter holders of the common stock may receive dividends out of the net assets of the corporation in excess of its capital or out of its net profits. The corporation may, at any time, redeem its preferred stock by paying up dividends and paying therefor a price of $5.50 per share. The preferred stock has no voting power. The holders of the common stock are, of course, entitled to vote their holdings.

An interview with Dr. J. G. Berkowitz, August 16, indicated that United Medical Service, Inc., is a subsidiary of National Medicine, Inc. United Medical Service, Inc., has signed a five-year lease on three floors of the Finchley Building of Chicago for a term rental of $90,000 and is equipping these floors for the operation of a medical and dental clinic, which proposes to offer its services to the medical profession and the public on November 1.

The officers of United Medical Service, Inc., are now announced as: Dr. Joseph G. Berkowitz, president; Dr. Carl Sandberg, first vice president; Dr. Charles R. Wiley, second vice president; Brig. Gen. James J. Ryan, treasurer, and Dr. Charles Funck, secretary. The board of directors includes these men and also Dr. Roy D. Kline and Dr. Charles Cooley. James J. Ryan, the treasurer of the organization, served in the United States Army for many years. From 1924 until 1932 he was financial representative of the Insull interests with headquarters in New York. He was prominently concerned with Dr. J. G. Berkowitz in the development of the Public Health Institute.

In the meantime other investigations indicate that United Medical Service, Inc., is about to change its board of directors, although this change has not been officially listed in Springfield. The new board will include, as was found by telephone inquiries to the men concerned, among others, Hamilton M. Loeb of Chicago, an insurance man; Samuel Stein, president of the Paris Garter Company, and C. A. Templeton of the Templeton Trucking Company. A telephone call to each of these men resulted in a response to the effect that he had accepted appointment on the board of directors of United Medical Service, Inc. Evidence is also available which indicates that it is proposed to advertise extensively the services to be rendered by this corporation in the field of medicine, although so far as we know, contracts have not yet been made with either advertising agencies or newspapers for this type of promotion.

The charters of the corporations indicate that it is proposed to offer complete medical service, including hospitalization, diagnostic care and treatment, and that it is proposed to sell drugs and medicines at cut rates made possible by large scale buying. The charters seem to take in enough territory to establish positively the fact that this is a corporation, established for profit, to vend the services of physicians to the public. It is apparently not planned to limit operations to Chicago. This is essentially the application of the methods of big business to medical practice.

Following the establishment of the Public Health Institute, the Chicago Medical Society determined that the methods used in its promotion where unethical. The Chicago Medical Society will, of course, consider well the nature of the new organization and the methods used in its exploitation. It may determine for itself whether or not the operation of such an organization is in the interest of the public welfare and the advancement of medical science and in accord with the ethical principles that have dominated medicine through the ages.

Association News

ABSTRACT OF MINUTES OF MEETING OF BOARD OF TRUSTEES HELD IN CHICAGO, SEPT. 22 AND 23, 1932

The Board of Trustees met in Chicago on Thursday and Friday, September 22 and 23.

The first day was given over to a discussion of contract practice and artificial schemes for providing medical and hospital service, which was participated in by members of the Judicial Council and a few representative members of the profession.

TERMS OF SERVICE FOR MEMBERS OF EDITORIAL BOARD OF ARCHIVES OF INTERNAL MEDICINE

The terms of service of members of the Editorial Board of the *Archives of Internal Medicine* were fixed as follows: Dr. N. C. Gilbert, five years; Dr. Russell M. Wilder, four years; Dr. Arthur Bloomfield, three years; Dr. J. H. Musser, two years, and Dr. Reginald Fitz, one year.

SECTION TRANSACTIONS

It was decided to discontinue the publication, in book form, of the transactions of the several scientific sections of the Scientific Assembly, except in those instances in which some arrangements can be made that will insure their issuance without a loss.

PRESENTATION TO DR. HECKEL OF RESOLUTION OF APPRECIATION

The Chairman of the Board presented to Dr. Edward B. Heckel a beautifully engraved copy of the resolution, adopted by the House of Delegates at the New Orleans Session of the Association, expressing appreciation of the service rendered by him during his eight years of service as a member, and chairman, of the Board of Trustees.

SUPPLEMENT TO TWELFTH EDITION OF AMERICAN MEDICAL DIRECTORY

To meet the demand for up-to-date information concerning physicians, it has been decided to issue, at a nominal charge, a mimeographed supplement to the Twelfth Edition of the American Medical Directory, which will contain twelve or thirteen hundred names; i. e., the names of newly licensed physicians, with biographic data concerning each, and the names of physicians who have died since the issuance of the twelfth edition of the directory.

REPRESENTATION FOR JOINT COMMITTEE ON HEALTH PROBLEMS IN EDUCATION

Dr. W. W. Bauer, director of the Bureau of Health and Public Instruction, was appointed to represent the Association on the Joint Committee on Health Problems in Education of the American Medical Association and the National Education Association. A second representative, to succeed Dr. Orlando H. Petty (deceased), will be named at a later date.

INVITATION TO TENTH ANNUAL NATIONAL MEDICAL CONGRESS

An invitation to the directors and members of the American Medical Association to attend and take part in the tenth annual National Medical Congress, to be held in the city of Morelia, Michoacan, Mexico, December 4-11, was received and will be published in THE JOURNAL so that it may come to the attention of members of the organization who might like to attend the congress.

ILLNESS OF PROFESSOR PUCKNER

A leave of absence of two months, with salary, was granted for Prof. W. A. Puckner, secretary of the Council on Pharmacy and Chemistry, who was ill in the hospital.

The deliberations concerned many other matters which will be covered in later reports of the Board.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday and Wednesday from 10:45 to 10:50 a. m. over Station WBBM (770 kilocycles, or 389.4 meters). The Columbia chain program has been discontinued for the present.

The subjects for the week are as follows:

October 10. Unusual Accidents.
October 12. Your Years and Your Age.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 10:45 to 11 over Station WBBM.

The subject for the week is as follows:

October 15. The Superior Child.

This schedule is based on central standard time.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Southern California Medical Association.—At the semiannual meeting of the Southern California Medical Association in Riverside, October 28-29, Drs. John H. Fitzgibbon, Portland, Ore., will speak on "The Irritable Colon"; Jay J. Crane and George F. Schenck, Los Angeles, "Renal Infections"; William H. Daniel, Los Angeles, "Injection Treatment of Rectal Diseases: An Economic Problem"; Grant H. Lanphere, Los Angeles, "Treatment of Peptic Ulcer with Gastric Mucin"; George D. Maner and Roy W. Hammack, Los Angeles, "Friedman Test for Pregnancy"; Eberle Kost Shelton, Santa Barbara, "Hypophyseal Infantilism"; William C. Munly, "Natural History and Course of Heart Disease"; Dwight Davis, Los Angeles, "Lipiodol Bronchography in Pulmonary Diseases"; Harry D. Van Fleet, Los Angeles, "Lower Mortality and Earlier Recovery Resulting from Closer Cooperation Between Surgeon and Internist"; Harlan W. Shoemaker, Los Angeles, "Restoration of the Continuity of the Gastro-Intestinal Tract" with report of cases; Ray B. McCarty, Riverside, "Surgical Significance of Spontaneous Hematoma of the Rectus Abdominis Muscle," and Thomas A. Card, Riverside, "Spinal Anesthesia." "The Physiology of the Heart," motion picture with sound, made by Drs. Anton J. Carlson and Arno B. Luckhardt, Chicago, will also be shown.

COLORADO

Dr. Ebaugh Completes Survey of Psychiatric Teaching.—Dr. Franklin G. Ebaugh returned to his position as director of the Colorado Psychopathic Hospital in Denver, September 12, after a year's leave of absence to make a survey of psychiatric teaching in medical schools. The work was a part of the activities of the division of psychiatric education of the National Committee for Mental Hygiene, created in 1931 (THE JOURNAL, Sept. 19, 1931, p. 857). Dr. Ebaugh has been director of the hospital and professor of psychiatry at the University of Colorado School of Medicine since 1924. Dr. George S. Johnson, acting director during Dr. Ebaugh's absence, continues as assistant director.

CONNECTICUT

License Revoked.—Following a hearing, July 26, the Connecticut Medical Examining Board revoked the license to practice medicine and surgery of Dr. Frederic E. Rainville, Jewett City. Dr. Rainville is said to have been convicted of the crime of abortion by the superior court of New London County, and sentenced to the county jail for one year.

Cancer Study in New Haven.—A study of cancer death rates by wards and sanitary districts for the years 1925-1931 was recently made in New Haven. The object was to determine which sections of the community have the highest cancer mortality rates; 1,700 death certificates, representing the total resident and nonresident cancer mortality in New Haven during the seven years, were studied. It was found that 803 (47 per

cent) of the deaths occurred in the three general New Haven hospitals, while 897 (53 per cent) occurred in homes, institutions or small private hospitals. The survey showed that the mortality rates of New Haven sanitary districts were, apparently, not statistically influenced by economic or racial factors, but that the age of the population in each district was the dominating factor. The highest rates were found in the better residential districts, indicating an age factor, apparently, for in these sections the greater percentage of population was more than 44 years of age. The district having the highest percentage of foreign-born had the lowest death rate, and the district having the second highest percentage in the foreign group did not show a correspondingly high rate. Similarly, the districts with the lowest economic status had the lowest rates, while the richest districts had the highest.

GEORGIA

Commission to Study Maternal Mortality.—Two physicians from each congressional district in Georgia have been appointed by the state medical association as a commission to study the high maternal death rate of the state. The causes of death in children under 1 year of age will also be investigated. The commission will base its study on exact copies of death certificates filed with the department of public health. The journal of the state medical association reports that Georgia has one of the highest if not the highest maternal mortality rate in the country. In 1931 the infant mortality rate was 68.6 per thousand live births, in 1930 it was 78.1, and in 1924, 92.7. Last year 616 mothers died in childbirth in the state.

Honor Memory of Physician.—The Fulton County Medical Society and the woman's auxiliary gathered, September 17, in Utoy Cemetery, Atlanta, to honor the memory of Dr. Joshua Gilbert, the first physician to practice in that city, newspapers reported. The occasion celebrated his one hundred and seventeenth birthday. More than seventy-five members of the society and friends and relatives of the pioneer physician were in attendance. Dr. Frank K. Boland gave a eulogy and Dr. James L. Campbell presided. Wreaths were placed on the graves of Dr. Gilbert and his wife. A picture of Dr. Gilbert was presented to the medical society by relatives. The bulletin of the Fulton County Medical Society states: "Born in South Carolina, Sept. 17, 1815, Dr. Gilbert located in Atlanta, then Marthasville, in 1845. For six months he was the only physician here and until his death in 1889, he was one of the leading physicians in Atlanta."

IDAHO

State Medical Election.—Dr. John S. Springer, Boise, was named president-elect of the Idaho State Medical Association and Dr. Edward N. Roberts, Pocatello, became president at the annual meeting in Pocatello, September 16-17. The next meeting will be held jointly with the medical societies of Montana and Wyoming at Yellowstone National Park, Aug. 6-8, 1933.

ILLINOIS

Memorial to Physician.—A bronze memorial tablet was unveiled in the Berwyn Hospital, September 4, commemorating Dr. Arthur MacNeal, whose death occurred, March 13. Dr. MacNeal founded the Berwyn Hospital and practiced in Berwyn for forty years.

Personal.—Dr. Alexander P. Robertson resigned as health commissioner of Alton, August 24, and Dr. Roy W. Merkle has been appointed to succeed him.——Dr. James J. Donahue has assumed his new position as supervisor of medical and health service in the public school system of East St. Louis.

Society News.—Dr. William H. Gibbon, Iowa City, addressed the Peoria City Medical Society, September 20, on primary tumors of the bone.——The Decatur Medical Society was addressed, September 19, by Dr. Frank P. Norbury, Jacksonville, on neuropsychiatry in industry, and Cyrus E. Burford, St. Louis, kidney tumors.——Speakers before the Coles-Cumberland Counties Medical Society, September 20, were Drs. Peter S. Clark and Vance Rawson, Chicago, on "Diagnosis and Treatment of Peptic Ulcer" and "Eight Years in a Heart Clinic," respectively.——At a meeting of the La Salle County Medical Society, September 27, the program was given by three members of the University of Wisconsin Medical School, Madison: Drs. Eugene E. Neff, who discussed squint; Ira R. Sisk, transurethral resection of the prostate, and William S. Middleton, diet in nephritis.——A new roentgen-ray department occupying ten rooms has recently been installed at the John C. Proctor Hospital, Peoria.

Chicago

Society News.—A symposium on anemia will be presented before the Chicago Medical Society, October 12, by Drs. Charles B. Wright, Minneapolis, Minn., William H. Holmes and Henry G. Poncher.——Dr. Otis H. Maclay and Mrs. Ruth Getty offered a symposium on bacteriology of the maxillary sinus before the Chicago Laryngological and Otological Society, October 3; at this meeting Dr. Robert Sonnenschein spoke on "Reflex Symptoms from Diseases of the Ear, Nose and Throat, Such as Sneezing, Pain, Cough, Hoarseness and Tinnitus."——Speakers before the Chicago Surgical Society, October 7, included Drs. George Halperin on "Regenerative Capacity of the Extrahepatic Bile Ducts—An Experimental Study," and Harry Jackson, "Effect of Hypertonic Glucose Solutions on Intracranial Pressure in Acute Cranial Injuries."——Dr. Paul R. Cannon will give the presidential address before the Chicago Pathological Society, October 10, on "New Trends in the Study of Infection and Resistance."

Psychoanalytic Institute Opened.—An institute for psychoanalysis was opened at 43 East Ohio Street, October 3, with Dr. Franz Alexander as director. Dr. Alexander was formerly associated with the Berlin Psychoanalytic Institute and was visiting professor of psychiatry at the University of Chicago. Dr. Karen Horney, also of the Berlin institute, will be associate director. The objectives of the institute will be to carry on research and to study, teach and practice psychoanalysis. A limited number of patients will be accepted whose therapeutic problems coincide with the research aims of the institute. The Chicago institute will be the second of its type in the United States and the first to maintain a full time staff with fixed salaries. The institute is partially endowed and is incorporated under the laws of Illinois as a nonprofit organization. Mr. Alfred K. Stern, a director of the Julius Rosenwald Fund, is president of the board; Sidney L. Schwarz, a trustee of Michael Reese Hospital, vice president; Dr. Ludvig Hektoen, director, John McCormick Institute for Infectious Diseases, treasurer, and Walter T. Fisher, an attorney, secretary. Part time members of the staff are:

Dr. Thomas M. French of the Institute for Juvenile Research, Chicago.
Dr. Helen Vincent McLean, lecturer at the School of Social Service Administration, University of Chicago.
Dr. Karl A. Menninger, director of the Menninger Neuropsychiatric Clinic, Topeka, Kan.
Dr. N. Lionel Blitzsten of the department of neuropsychiatry, Northwestern University Medical School, Chicago.
Dr. Catherine C. L. Bacon, Chicago.

The following will act as consultants:

Dr. Leo H. Bartemeier, Detroit.
Dr. John Favill, Rush Medical College, Chicago.
Dr. Margaret W. Gerard, University of Chicago.
Dr. Ralph C. Hamill, Northwestern University Medical School.
Dr. Paul L. Schroeder, director, Institute for Juvenile Research.
Dr. H. Douglas Singer, University of Illinois School of Medicine, Chicago.

An advisory board is made up of:

Dr. Albert M. Barrett, University of Michigan Medical School.
Dr. Earl D. Bond, University of Pennsylvania School of Medicine.
Dr. Abraham A. Brill, president, American Psychoanalytic Society, New York.
Dr. Max Eitingon, Berlin, president, International Psycho-Analytical Association.
Dr. Bernard Glueck, medical director, Stony Lodge, Ossining, N. Y.
Dr. William Healy, director, Judge Baker Foundation, Boston.
Dr. David M. Levy, of the Institute for Child Guidance, New York.
Dr. William A. White, George Washington University School of Medicine, Washington, D. C.

The quarters of the institute consist of a library and lecture room, six analysis rooms, a medical laboratory and a reception room.

INDIANA

Golf Tournament.—Sixty-five members of the Indianapolis Medical Society took part in the final medal play golf tournament, September 14, at the Indianapolis Country Club. Dr. Paul T. Hurt won the low gross prize, donated by Dr. Max A. Bahr as the president's trophy, with a score of 78. Dr. William S. Tomlin, with a low net of 71, won the secretary's trophy, given by Dr. Chester A. Stayton for men over 50. Dr. Okla W. Sicks with a low net of 62 won the chairman's trophy, given by Dr. Cleon A. Nafe.

Typhoid Outbreak.—Thirteen cases of typhoid were reported in the newspapers in and about Warsaw early in September. An investigation by the state board of health disclosed no contaminated milk or water or persons suspected of being typhoid carriers. In spite of this, however, local dairies were ordered to discontinue delivery of milk until they had complied with certain requirements. It was brought out that all the thirteen persons had either been regular customers or at infrequent times had used milk from one particular dairy.

Society News.—Dr. Howard B. Mettel, Indianapolis, addressed the Madison County Medical Society, meeting as guests of the staff of St. John's Hospital, Anderson, September 19, on "Diagnosis and Treatment of Allergic Conditions."——The Kosciusko County Medical Society was addressed, September 13, by Dr. Leslie A. Laird, North Webster, on "Cerebrospinal Meningitis."——Dr. Orville E. Spurgeon, Muncie, addressed the Delaware-Blackford County Medical Society in Muncie, September 20, on fractures and dislocations.——At a meeting of the Cass County Medical Society in Logansport, September 16, Dr. Joseph Rubsam, Logansport, spoke on local anesthesia.——Speakers before a joint meeting of the Owen County Medical Society and the Second District Medical Society, near Spencer, September 21, included Drs. Arthur F. Weyerbacher, Indianapolis, on genito-urinary diseases of interest to the general practitioner, and Ezra V. Hahn, Indianapolis, problems of acute appendicitis.——Dr. Robert B. Preble, Chicago, will address the Tippecanoe County Medical Society, October 13, on angina pectoris.

KENTUCKY

Society News.—Dr. Isaac P. Seiler, Piketon, Ohio, was elected president of the Tri-State Medical Society (Kentucky, Ohio and West Virginia) at the annual meeting in Ashland, September 15. Speakers at the meeting were Drs. Virgil E. Simpson, Louisville, on "Meningo-Encephalomyelitis"; William D. Porter, Cincinnati, "Indications for Cesarean Section," and Claude C. Coleman, Richmond, Va., "Management of Acute Cord Injuries, with Special Reference to Indications for Laminectomy."——Drs. Thomas J. Marshall, Paducah, and Reuben C. Burrow, Cunningham, addressed a joint meeting of the Carlisle and Ballard county medical societies at Bardwell, September 13, on colitis and focal infection, respectively.——Dr. L. Ray Ellars, Louisville, discussed trigeminal neuralgia at the first fall meeting of the Daviess County Medical Society, Owensboro, September 13.——Dr. Jasper R. McClure, Cincinnati, made an address on diseases of the joints at a meeting of the Campbell-Kenton County Medical Society, Dayton, September 15. Dr. Max M. Zinninger, Cincinnati, addressed the society, September 1, on diseases of the gallbladder.——Four Louisville physicians addressed the Larue County Medical Society, Hodgenville, at the August meeting: Drs. Frank P. Strickler, on recurrent dislocation of the shoulder; R. Hayes Davis, oxygen therapy; Frank M. Stites, Jr., a new treatment for malnutrition, and L. Wallace Frank, cancer of the breast.——Drs. Bernard Asman and Oscar O. Miller, Louisville, addressed physicians of the Sixth District Medical Society at Greensburg, September 14, on anorectal diseases and treatment of tuberculosis, respectively.——Drs. Alfred Blalock and Tinsley R. Harrison, Nashville, Tenn., addressed the Christian County Medical Society, Hopkinsville, September 20, on "Treatment of Pulmonary Tuberculosis" and "Differentiation of Heart Disease," respectively.——Dr. Roland L. McCormack addressed the Jefferson County Medical Society, Louisville, September 19, on "Application of the Physiology of Respiration to Some Diseases of the Respiratory Mechanism."

MARYLAND

Personal.—Dr. Hosea E. McAdoo has been appointed superintendent of the Springfield State Hospital, Sykesville, succeeding the late Dr. Edwin P. Bledsoe. Dr. McAdoo has been clinical director at the hospital since March, 1931.

House Officers' Night.—Friday, October 7, the Baltimore City Medical Society resumed its meetings with an observance of House Officers' Night. Dr. Dean Lewis, president of the society, presided at the dinner and gave an address on "Medical Care of the Veteran." The scientific program included, among others, Drs. John R. Eggleston and R. Walter Graham, Jr., on "Rocky Mountain Spotted Fever," and Thomas A. C. Rennie, "Fluctuation in Dispensary Admissions and Its Relation to the Economic Depression." The society will be addressed, October 21, among others, by Dr. Lee Cohen on "Value of High Frequency Current in Nasal Conditions with Probable Benefits in Gastro-Intestinal Disturbances."

Semiannual Meeting of State Society.—The Medical and Chirurgical Faculty of Maryland will hold its semiannual meeting at the Manor Club, Norbeck, October 11. Dr. Dexter M. Bullard, Rockville, will give the address of welcome, and Dr. Eldridge E. Wolff, Cambridge, president of the state society, the response. The scientific session will be presented by Drs. S. Lloyd Johnson, Baltimore, with a paper on "Submaxillary Mumps, Clinical Report of Several Cases"; Dean Lewis, Baltimore, "Changing Times in Medicine," and Hugh S. Cumming, surgeon general, U. S. Public Health Service, Washington, D. C., "Relation Between the General Practitioner and the Public Health Official."

Dr. Sigerist at Johns Hopkins.—Dr. Henry E. Sigerist has arrived at Johns Hopkins University to assume his duties as director of the Institute of History of Medicine, succeeding Dr. William H. Welch. Dr. Sigerist, since 1925, has been head of the Leipzig Institute of the History of Medicine, Leipzig, Germany. Dr. Oswin Temkin, who had been first assistant to Dr. Sigerist at Leipzig, has been appointed associate in the history of medicine at Johns Hopkins. Dr. Sigerist, in addition to his other work, will give a course in the history of science for undergraduates. Dr. John Rathbone Oliver will also give an introductory course in medical history.

MINNESOTA

Personal.—Dr. Henry S. Plummer, head of the goiter division of the Mayo Clinic, Rochester, has been appointed director of the department of medical statistics, succeeding Dr. Halbert L. Dunn. Dr. Samuel F. Haines will succeed Dr. Plummer as chief of the goiter division.

Chiropractors' Certificates Rejected.—A motion came before the board of education of Minneapolis recently to accept certificates of chiropractors in certain cases in which "physicians' certificates" had previously been construed as implying those of doctors of medicine only, states the *Journal-Lancet*, September 15. Four members of the Hennepin County Medical Society spoke. The motion was lost by a unanimous vote.

Society Programs.—The Hennepin County Medical Society will have the following speakers on the dates given: Drs. F. E. B. Foley, St. Paul, "Cystoscopic Prostatectomy," and Henry F. Helmholz, Rochester, "Use of the Ketogenic Diet in the Treatment of Pyelitis," October 19; A. T. Henrici, Minneapolis, "New Developments in the Bacteriology of Actinomycosis," and Fred W. Rankin, Rochester, "Carcinoma of the Rectum," October 26. Dr. Edgar J. Huenekens, Minneapolis, will conduct an infant welfare clinic before the society, October 12.

Practicing Without a License.—Samuel C. Hoen, St. Paul, pleaded guilty, September 19, before Judge Boerner of the district court for Ramsey County to practicing medicine without a license. Hoen, a licensed masseur, is said to have treated a woman for cancer of the breast. He made his diagnosis by looking into the eyes of the patient, and treated the ailment by the so-called galvanic current. Hoen was sentenced to one year in the St. Paul Workhouse and ordered to return within thirty days the money obtained. He was also made to surrender his massage license and was placed on probation for the next year.

NEW YORK

Society News.—Dr. Edmund Prince Fowler, New York, addressed the Medical Society of the County of Nassau, September 27, on prevention and treatment of deafness, and Dr. Gerard H. Cox, Glen Cove, on deafness in Long Island children.

New York City

Alfred Adler Joins Long Island College.—Dr. Alfred Adler, founder of the School of Individual Psychology in Vienna, has joined the staff of Long Island College of Medicine, Brooklyn. It was announced that he would give weekly lectures on medical psychology, beginning October 3. He will remain for five years, according to the announcement.

Society News.—Dr. Mervin C. Myerson, among others, addressed a joint meeting of the Medical Society of the County of Queens and the Queensboro Tuberculosis and Health Association, September 20, on laryngeal tuberculosis. A golf tournament was held in the afternoon at the Oakland Country Club, Bayside.——The Middleton Goldsmith Lecture of the New York Pathological Society will be delivered, October 13, by Dr. Julius Bauer, Vienna, on "Genetics in Cancer."

University Acquires Old Cornell Buildings.—New York University has purchased the buildings and equipment formerly used by Cornell University Medical College fronting Bellevue Hospital, with the prospect of developing in the future a large medical center in the Bellevue Hospital area. For the present the property will be utilized by University and Bellevue Hospital Medical College for laboratory and teaching space, but the undergraduate student body will not be enlarged, it was said. New York University now owns all the land necessary for its projected health center, including all the property between Twenty-Fifth and Twenty-Eighth streets on both sides of First Avenue.

Appointments at Hospital for Joint Diseases.—Six appointments for a two years' rotating service on the staff of

the Hospital for Joint Diseases are open to graduating students and graduates of Class A medical schools, the hospital announces. Three of the terms will begin July 1, 1933, and three, Jan. 1, 1934. Candidates must register before December 15; the examination will be held, December 22, at the hospital. At the end of the two years, interns will be eligible for a residency in orthopedic surgery, the Frauenthal Travel Scholarship of $2,400 a year for six months of study in European clinics and six months in the United States, and the Mr. and Mrs. Frederick Brown research fellowships, which provide two awards of $2,400 each.

NORTH CAROLINA

Society News.—Drs. John B. Wright, Raleigh, and Lewis B. McBrayer, Southern Pines, addressed the New Hanover County Medical Society, Wilmington, September 10, on medical legislation concerning workmen's compensation laws, hospitalization of veterans and medical care for the indigent.

OHIO

Lecture by Dr. Krasnagorski.—Dr. Nicholas I. Krasnagorski, professor of pediatrics in the First Medical Institute in Leningrad, U. S. S. R., lectured on "Conditioned Reflexes in Psychopathology of Childhood" at the Institute of Pathology, Western Reserve University, Cleveland, September 26.

Personal. — Dr. Alfred B. Lippert, director of the child hygiene division of the state department of health, Columbus, has been appointed health commissioner of Shelby County to succeed Dr. Benjamin A. S. Stephenson, Sidney.——Dr. William C. Marshall, Yellow Springs, has been appointed to succeed Dr. Robert H. Grube, Xenia, as health officer of Greene County. Dr. Grube was guest of honor at a dinner given by the Greene County Medical Society, October 1. He will go to California shortly to live.——Dr. Louis P. Alff, who has practiced more than fifty years in Piqua, was the guest of honor at a dinner given by the staff of Ball Memorial Hospital, September 19. He is said to be the only living charter member of the Piqua Medical Society.

Society News.—Dr. William H. Gordon, Detroit, addressed the Hancock County Medical Society, Findlay, September 7, on agranulocytosis.——Dr. Wesley W. Beauchamp, Lima, discussed endocrinology at the September meeting of the Putnam County Medical Society, Columbus, September 1.——Physicians of Sandusky, Crawford and Hancock counties were guests of the Seneca County Medical Society at Tiffin, September 6, to hear an address by Dr. Louis J. Karnosh, Cleveland, on the development of psychiatry.——Dr. Lloyd B. Johnston, Cincinnati, addressed the Clinton County Medical Society, Wilmington, September 6, on "Peptic Ulcer of Meckel's Diverticulum as a Cause of Internal Hemorrhage and Perforation."——Drs. Robert B. Drury and Edward E. Campbell, Columbus, addressed the Muskingum County Academy of Medicine, Zanesville, September 1, on general surgery and auricular fibrillation, respectively.——Drs. William A. Neill and James A. H. Magoun, Toledo, were the speakers at the first fall meeting of the Wood County Medical Society, Bowling Green, September 15, on "Figures and Facts of Cancer Cases" and "Diagnosis and Management of Malignancy," respectively.

PENNSYLVANIA

Society News.—Dr. Byron D. Bowen, Buffalo, addressed the Erie County Medical Society, Erie, September 6, on treatment of the diabetic patient.——Drs. Howard K. Petry and Robert H. Israel, Warren, addressed the Mercer County Medical Society, September 14, Mercer, on "Relation of the General Practitioner to the Mental Hygiene Movement" and "Early Signs of Mental Disorder," respectively.——The program of the Clearfield County Medical Society at its meeting, September 22, in DuBois, was given by DuBois physicians: Drs. Harry A. Vosberg, Jr., on gastro-intestinal signs of mastoiditis; Herman C. Hughes, eye defects in school children, and Willis A. Houck, obstetric anesthesia.

Philadelphia

Society News.—At the first fall meeting of the Philadelphia County Medical Society, September 28, Dr. Charles F. Nassau was inaugurated president and a gavel was presented to the retiring president, Dr. Jay F. Schamberg. Hon. James H. Douglas, assistant secretary of the treasury, Washington, D. C., made an address on the federal reconstruction program. The first scientific meeting will be held, October 12, with the following speakers: Drs. Frank E. Coughlin, Albany, N. Y., on undulant fever; Carl J. Bucher, tularemia, and George E. Johnson, poliomyelitis.

University News.—Dr. Willis F. Manges gave an address on "The Development of Roentgenology" at the opening of Jefferson Medical College, September 21. The following appointments to the staff were announced by Dr. Ross V. Patterson, dean: Dr. Charles M. M. Gruber, St. Louis, professor of pharmacology; Drs. Henry K. Mohler, Harold W. Jones and Burgess L. Gordon, Jr., associate professors of medicine; Lewis C. Scheffey, assistant professor of gynecology; Warren B. Davis, assistant professor of oral surgery, and William A. Kreidler, assistant professor of bacteriology. The appointment of Dr. E. Quin Thornton as professor of materia medica was announced in THE JOURNAL, September 10, page 925.

Faculty Changes at Woman's College. — Dr. Martha Tracy, dean, Woman's Medical College of Pennsylvania, at the opening of the new term, September 21, announced the following changes in the faculty, among others:

APPOINTMENTS

Dr. William Oakley Hermance, clinical professor of proctology.
Dr. John F. McCloskey, clinical professor of surgery.
Dr. William G. Leaman, Jr., associate in medicine in charge of cardiology.
Dr. Annie R. Elliott, associate lecturer in clinical psychiatry.

PROMOTIONS

Dr. Frieda Baumann, associate professor of applied therapeutics.
Dr. Jean Crump, assistant professor of clinical pediatrics.
Dr. Winifred B. Stewart, assistant clinical professor of neurology.
Dr. Virginia E. Lane, associate in clinical obstetrics.

Poliomyelitis Increases.—A United Press news item of September 30 stated that thirteen cases and one death of poliomyelitis were reported to the health department in the twenty-four hours preceding the news report. Only two cases had been reported Tuesday, September 27, and three the following day. The increase brought the total number of deaths to 72 and the number of cases to 647. It was thought that the opening of elementary and junior high schools might be further postponed. Both Swarthmore and Haverford colleges postponed their openings because of the epidemic. Governor Pinchot, September 24, sent out a call for convalescent serum to combat the epidemic. It is reported that the physician who had been in charge of cases at the Municipal Hospital for Contagious Diseases in Atlantic City and his two children are among those who have the disease. Clinics for administration of serum are in operation at St. Luke's, St. Agnes and Children's hospitals.

TEXAS

Faculty Changes in Medical School.—New members of the faculty of the University of Texas School of Medicine, Galveston, which opened October 1, are Donald Duncan, Ph.D., assistant professor of anatomy, University of Buffalo, who will be associate professor of anatomy; Dr. Francis J. L. Blasingame, who will succeed Dr. Wilbur A. Sengelmann, resigned, as instructor in anatomy; Wendell Gingrich, Sc.D., Chicago, who will be professor of bacteriology and preventive medicine, and Dr. William M. Powell, who will be instructor in pathology, succeeding Dr. Ellen D. Furey, resigned.

Society News.—Drs. Percy M. Girard and Daniel Brannin, Dallas, addressed the Cooke County Medical Society, Gainesville, August 9, on "Scar Tissue Contractures About the Joints" and "Common Conditions of the Eye," respectively.——Drs. Edgar P. Hutchings, Marlin, and Olin F. Gober, Temple, were speakers at a meeting of the Falls County Medical Society, Marlin, August 8, on sinusitis and intestinal toxemia, respectively.——Dr. Marvin C. Overton, Lubbock, discussed "Value of Whole Blood Injections in the Prevention of Measles," at a meeting of the Lubbock County Medical Society, August 2.——A symposium on medical economics will be presented before the Dallas County Medical Society, October 27, by David Woodlock, St. Louis; Dr. Witten B. Russ, San Antonio, and A. W. Hiller, D. D. S., Fort Worth; Drs. J. Guy Jones, Samuel A. Shelburne and Lemuel C. McGee will present a symposium on ocular diseases at a meeting of the society, October 13.

UTAH

State Medical Meeting and Election.—Dr. Herbert A. Adamson, Richmond, was chosen president-elect of the Utah State Medical Association at the thirty-eighth annual session in Ogden, September 15-17, and Dr. Frank M. McHugh, Salt Lake City, was installed as president. Other officers elected were Drs. Thomas A. Flood, Salt Lake City; Thomas R. Gledhill, Richfield, and Leslie S. Merrill, Ogden, vice presidents; Leland R. Cowan and Franklin H. Raley, both of Salt Lake City, secretary and treasurer, respectively, reelected. The next session will be held in Salt Lake City. The Harlow Brooks Fund Post-Graduate Course was held the first day,

conducted by Drs. Winfred H. Bueermann, Portland, Ore., and Constantine F. Kemper, Denver, at the Thomas D. Dee Memorial Hospital. Dr. Bueermann lectured on diagnosis and surgical management of goiter and of dyspepsia and Dr. Kemper on endocrine diseases and on diabetes. Speakers on the scientific program were:

Dr. Frank Hinman, San Francisco, Comparative Anatomy of Excretion; Renal Infections.
Dr. Claude E. Cooper, Denver, Some Medical Economic Problems.
Dr. John M. Flude, Los Angeles, A Survey of Cancer.
Dr. Walter C. Alvarez, Rochester, Minn., The Problem of the Constitutionally Inadequate Person; Treatment of Organic Disease in the Digestive Tract.
Dr. Constantine F. Kemper, Denver, Treatment of Essential Hypertension.
Dr. Winfred H. Bueermann, Portland, Ore., Diagnostic Aspect of Goiter.
Dr. Samuel C. Baldwin, Salt Lake City, Traumatic Basis of Back Pain.
Dr. Paul R. Weeks, Ogden, Compression Fractures of the Spine.

The annual banquet was held, Friday afternoon, September 16, at the Hotel Bigelow, with Dr. Sidney W. Badcon, Ogden, as toastmaster. Golf matches were held at the Ogden Golf and Country Club.

WASHINGTON

Society News.—Dr. Wilford M. Nelson addressed the first fall meeting of the King County Medical Society, Seattle, September 12, on "Liver Deaths in Surgery of the Gallbladder." A motion picture on the mechanism of the heart beat was shown. Drs. James M. Bowers and Charles E. Watts addressed the society, October 3, on "Abdominal Pain as a Diagnostic Aid" and "Cardiac Asthma," respectively.——Dr. Charles F. Engels, Tacoma, was elected president of the Public Health League of Washington at the annual meeting in Tacoma, September 13.

WISCONSIN

Personal.—Dr. Eleanore Cushing-Lippitt, Milwaukee, was elected president of the Wisconsin Medical Women at the annual meeting in Milwaukee, September 16.—Dr. Roland Alfred Jefferson, Denver, assumed the directorship of the Milwaukee Mental Hygiene Council, September 8.—Dr. Louis Dorpat, recently health officer of Ironwood, Mich., has been appointed superintendent of South View Isolation Hospital, Milwaukee.

State Society Honors Member. — The gold seal of the State Medical Society of Wisconsin, bestowed from time to time on members who have rendered exceptional service, was awarded to Dr. Mina B. Glasier, Bloomington, at the recent annual session of the society in Milwaukee. Dr. Glasier has practiced for fifty years in Bloomington, once served as president of the Grant County Medical Society, and for thirty years has been its secretary. For the past eight years she has been a member of the state board of health.

GENERAL

Congress of Anesthetists.—The eleventh annual congress of anesthetists will be held at the Hotel McAlpin, New York, October 17-21. Participating organizations are the Associated Anesthetists of the United States and Canada, International Anesthesia Research Society, Eastern Society of Anesthetists, Midwestern Association of Anesthetists, Southern Association of Anesthetists, and New York Society of Anesthetists. This will be known as the Thomas Beddoes Memorial Congress, in honor of the founder.

Tax on Toilet Preparations Sold on Prescriptions. — According to a recent decision of the Commissioner of Internal Revenue, if a physician specifies on a prescription that it is for a toilet purpose, the preparation dispensed is subject to the tax levied under section 603 of the Revenue Act of 1932. The decision recognizes that a prescription written only for a toilet purpose, as distinguished from a medicinal purpose, is a rarity. In the absence of definite evidence, therefore, that a prescription is for a toilet purpose, the Bureau of Internal Revenue will presume that it is for a medicinal purpose and the preparation dispensed under it will not be taxed, even though it is similar in nature to a toilet preparation and susceptible of use for toilet purposes.

Rise Reported in Cancer Death Rate.—Statistics recently published by the Metropolitan Life Insurance Company show that the death rate from cancer among industrial policyholders of the company has increased more than three-fourths as much in the past two years as it did in the twelve years from 1919 to 1930. For the latter period the difference in rate was 18.7 per cent, an average of 1.5 per cent a year. In 1931 a rise of 7.4 per cent occurred and reports for the first half of 1932 show a further rise of 9.5 over the rate for the first half of last year. It has been suggested that the unusual increase may have been due to a change in the age distribution of lives exposed to risk, but it is pointed out that other diseases of advancing age, such as heart disease and nephritis, have not shown comparable rises. The increase is in part attributed to more accurate diagnoses.

American Academy of Physical Therapy. — The tenth annual session of the American Academy of Physical Therapy will be held in Philadelphia, October 12-14, under the presidency of Dr. William F. Roberts, St. John, N. B. Scientific sessions will be held in the mornings, and afternoons will be given over to clinics in various Philadelphia hospitals. Among the speakers announced are:

Dr. Thomas Duckett Jones, Boston, Effect of Change in Climate in the Rheumatic Infection in Children with Heart Disease.
Dr. Theodore H. Weisenburg, Philadelphia, Physical Therapy in Neurology.
Dr. Frank H. Krusen, Philadelphia, Diathermy.
Dr. William Martin, Atlantic City, N. J., The Static Wave Current: Its Uses in Some Common Conditions.
Dr. Harold D. Corbusier, Plainfield, N. J., A New Technic in Muscle Reeducation in Anterior Poliomyelitis.
Dr. William L. Clark, Philadelphia, Advances in Treatment of Cancer Within the Mouth.

At a round table dinner Wednesday evening, October 12, discussion will be led by Drs. Ralph Pemberton, R. Tait McKenzie and William L. Clark, all of Philadelphia.

Death of Professor Puckner. — Prof. William August Puckner, secretary of the Council on Pharmacy and Chemistry of the American Medical Association, died at the Presbyterian Hospital in Chicago, October 1, aged 68. Professor Puckner was born in Wisconsin and educated at the Chicago College of Pharmacy, at Harvard University, and at the University of Heidelberg. He was a professor of chemistry at the University of Illinois School of Pharmacy from 1890 to 1910, also a member of the Committee on Revision of the U. S. Pharmacopeia, and of the Committee on Synthetic Drugs of the National Research Council. He received honorary degrees from the University of Pittsburgh and the Philadelphia College of Pharmacy. When the Council on Pharmacy and Chemistry was established in 1906, Professor Puckner was chosen secretary of the Council, and he has continuously held that position for twenty-six years, throughout the entire period of existence of the Council. Professor Puckner had many friends in the medical profession and they will remember him for his constant adherence to its ideals, for his gentility and for his efficient devotion to his work.

Federal Taxation of Salary of Superintendent of County Hospital.—Recently the Bureau of Internal Revenue was called on to determine whether the federal government could tax the salary of a physician superintendent of a county hospital in California. Under the constitution of the United States, the federal government may not tax the agencies by which the states discharge their strictly governmental functions. The hospital involved was established under a California statute authorizing county boards of supervisors to provide for the care of the indigent sick. Another statute, the "Pauper Act," places on every county the duty to relieve and support persons incapacitated by age, disease or accident, when such persons are not so aided by their relatives and friends, or by their own means, or by state or private institutions. In this case the facilities of the county hospital are not available to any one who can pay reasonable compensation for hospital care. The Bureau of Internal Revenue ruled that it is essentially a governmental function for a state or its political subdivisions to take care of the indigent sick. The county hospital consequently was held to be an instrumentality of the state engaged in the exercise of an essential governmental function and the salary of the superintendent was held not taxable under the income tax law. G. C. M. 10814 (C. B. XI—38—5698). The bureau distinguished this case from an earlier one in which a different conclusion was reached. I. T. 2357 (C. B. VI—1—52); THE JOURNAL, Aug. 27, 1927, page 714. In the earlier case the hospital was operated by a county as "an ordinary hospital . . . where reasonable compensation was paid for care and treatment, although that hospital like all hospitals did have some charity patients." It was not operated exclusively for the benefit of the indigent sick and paupers. The salary of the medical director was therefore held to be taxable. Where a state or county conducts a hospital in such a manner as to compete with the business of operating hospitals as carried on by private persons—that is, by taking all classes of patients regardless of their financial condition—the state or county will be regarded as performing a proprietary function. I. T. 2642 (C. B. XI—38—5697).

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 16, 1932.

Sir Ronald Ross

Sir Ronald Ross, whose name has been rendered immortal by his proving the mosquito theory of malaria, has died at the age of 75 at the Ross Institute and Hospital for Tropical Diseases, London. Born in India, the son of General C. C. G. Ross of the Indian army, he studied medicine at St. Bartholomew's Hospital and entered the medical service of the Indian army in 1881. Malaria was then the greatest scourge of tropical countries. The prevailing theory was that it was due to a kind of miasma from marshes, which was most abundant in the rainy season and in low-lying ground, though it had been suggested by certain writers as well as by natives that mosqitoes might disseminate it. In 1880 while working in Algiers, Laveran, a French physician, discovered the malarial parasite in the blood and recognized an asexual phase, coincidental with the acute stage of the fever, and a sexual phase. Ross, deeply interested in malaria, when home on leave consulted Sir Patrick Manson, then the leading authority on tropical diseases, as to a line of investigation. Manson had discovered that mosquitoes imbibed the filariae of elephantiasis from the blood of patients and suggested that they might also imbibe the malarial parasite, but he thought that fresh cases might be due to swallowing infected mosquitoes or the germs passed by them into water. Ross returned to India and made his great discovery that the anopheles mosquito imbibed the plasmodium of malaria when it sucked the blood of patients. The discovery was made only after much patient and baffling research, in which he not only received no encouragement or assistance from the government but was actually obstructed in his work by his military superiors. In his book he tells of one broiling afternoon when, after hundreds of all species of mosquito had passed the ordeal of the microscope without result, the reward of years of research was obtained. "The dissection was excellent and I went through the tissues now so familiar to me, searching every micron. Nothing. But the stomach still remained. I must have examined the stomach of thousands by this time. I saw a clear almost perfectly circular outline before me 12 microns in diameter. . . . Here was another and another. In each was a cluster of small granules black as jet, and exactly like the black pigment granules of the plasmodium crescents." "Adopting another suggestion from Manson, Ross studied the malaria of birds, already shown by Laveran to be due to a similar organism. He traced its progress to a stage in the stomach and to a further stage in the salivary gland. His brilliant discovery was followed by a long period of skepticism and official delay, which was most trying to his ardent temperament. In 1899 he left the Indian Medical Service and went on an expedition to West Africa for the Liverpool School of Tropical Medicine and there identified the parasite in cases of malaria. He was then appointed professor of tropical medicine in the University of Liverpool. In 1901 he visited the United States to lecture on malaria. This was the beginning of a number of missionary visits to malarious districts all over the world, including Panama, where he advised and reported on malaria control. In 1901 he was elected a fellow of the Royal Society, receiving later the royal medal. In 1902 he was awarded the Nobel prize. In the first year of the war he was on active service in Alexandria and in 1917 was appointed by the war office consultant on malaria, with the rank of lieutenant colonel. After the war he was appointed consultant on malaria to the ministry of pensions. He founded the Ross Institute and Hospital for Tropical Diseases in London, of which he was director, as a center of treatment and research as free as possible from official trammels, which he himself had found so irksome. He undertook the editorship of *Science Progress* and made it conspicuous among scientific periodicals for its vivid reviews and accurate summaries. In his later years he was troubled with financial worry for his family and an agitation took place to induce the government to make him a grant of money in recognition of his great discovery, as was done in the case of Jenner for his discovery of vaccination, but without result. No doubt the fact that he was in receipt of a pension from the army influenced the authorities. He then offered for sale his papers relating to his great discovery. They were bought by a wealthy woman and are now preserved in the Ross Institute. In 1929 a Ross award fund was started by some scientists and physicians to relieve his declining years of anxiety for his family; $60,000 was subscribed, to which the government of India contributed $10,000.

Ross belongs to that group of geniuses who without special training, special equipment or support from others have made great discoveries by indomitable perseverance. He also showed a versatility rare among scientists. He was not a trained mathematician, but he made incursions into mathematics which were original and ingenious. Moreover, he was a poet and a writer of romances, who if not widely popular had enthusiastic admirers. His "Poems," published in 1928, have been pronounced by good critics to have the thought and the music of true poetry. But his prose romances, works of extraordinary imagination, have attracted more attention. The best known are "Spirit of Storm," "Child of the Ocean" and "The Revels of Orsera."

Food Poisoning from Duck Eggs

At the last meeting of the Pathological Society of Great Britain and Ireland, Dr. W. M. Scott of the ministry of health described three cases of acute gastro-enteritis due to eating duck eggs (fried in two cases, raw in one). One case was fatal. In each case Bacillus aertrycke was isolated from the excreta or internal organs and was also found in eggs from the corresponding flock of ducks. In one flock all the ducks (nine) were found infected, B. aertrycke being present in the spleen, the ovary and the intestinal contents, and in an egg removed from the oviduct. In another flock, eighteen out of forty-six showed serologic evidence of aertrycke infection and at least four of these laid aertrycke-infected eggs. In the third flock, two out of five gave serologic evidence of aertrycke infection and at least one laid aertrycke-infected eggs. The importance of suspecting an egg in solitary cases of food poisoning was emphasized, as such cases may be otherwise inexplicable.

At the same meeting Mr. T. Dalling and Mr. G. K. Warrack reported that they had found that samples of blood from six out of twelve ducks on a farm where a large number of ducklings had died agglutinated the Gaertner bacillus. They also found this bacillus in the eggs of five of the positive reactors. These ducks were killed and the bacillus was found in the ovary in each case but in no other organ. The authors also made observations for a month on one of the flocks described by Dr. Scott and found that when the serum agglutinated B. aertrycke it remained positive throughout this period; and when it did not, in remained negative. Thus an infected flock might be cleaned by eliminating the positive reactors and keeping the negative ones under observation.

Mortality Among Sailors

The London School of Hygiene and Tropical Medicine has made an investigation for the government into the mortality in the British merchantile marine. The report is for the year ended September, 1930, and is based on the deaths of seamen which occurred both at sea and on shore. It has been compiled by Major P. G. Edge of the statistical department of the school. The conclusion is that the service is not more inimical to life

and health than many occupations ashore that are regarded as healthful, and, indeed, is better than some. However, the deaths due to drowning and injury afloat accounted for 32 and 17 per cent, respectively, of the total deaths. Many deaths from drowning are attributed to alcoholism, which in heavy weather leads men to be swept overboard. But seamen do not appear to be more addicted to alcohol than men of other occupations. Even with the greatest precautions, accidents will occur in the working of the ship, but the majority of drowning accidents occur while men are bathing or returning to or leaving the ship and might be avoided. A high suicide rate is noted; 4.8 per cent of the total deaths were due to this cause, compared with 1.6 per cent among all males.

Drugs and the Ottawa Conference

The *Lancet* calls attention to the fact that the British delegates at the Ottawa conference pledged their government to further duties on foreign imports of certain drugs, notably cod liver oil, honey and linseed. The proposed increase on honey is small, so that the duty "should not cause any marked increase in price." The bulk of this country's supply of linseed comes from South America and India; the other source could not for many years supply all our requirements. But what is said in the markets about honey and linseed is "hardly audible above the noise made about the increase in duty on foreign cod liver oil." The proposal is for an additional duty of 32 cents on imports of foreign, that is to say, Norwegian, cod liver oil. Nearly all the Newfoundland cod liver oil is consumed in the United States, and Britain depends on Norway as its main source of supply. Here is an object lesson in that form of protection called "preference," which is a political slogan just now. The Newfoundland producers of cod liver oil sell nearly all to the United States, but the increased price brought about by the duty in Britain would enable them to send their oil across the Atlantic and get more for it. The diminished supply for the United States would also increase the price there. This would be an opportunity for Norway to send the oil excluded from Britain across the Atlantic to the United States. Thus there is in each case the unnecessary Atlantic carriage and dearer oil for everybody. Could any better example be given of the fundamental fallacy of protection—that it "only turns industry from natural into artificial channels," as stated by the late Mr. Asquith? But he was a man who understood economics.

More Vitamins in Farm Produce

While the importance of the presence in food of a due quantity of vitamins has been emphasized and the need for these substances has even been exploited by commercial persons, nothing has been done to ensure that farm produce, which is produced largely by artificial methods, should contain a good supply. Sir Frederick Keeble, formerly assistant secretary of the board of agriculture, is now devoting himself to the study of fertilizers, on which he declares that the future of the human race depends. "The main cause of disease is undernourishment, an insufficient amount of food containing the right elements. A diet adequate in vitamins can be secured by a proper use of fertilizers." He believes that if grass which has been fertilized with nitrogen is dried in the right way and fed to cows, milk of the finest summer quality, rich in vitamin A, can be obtained. To test this a number of boys at one of the big public schools are being given a daily ration of milk so obtained, and their health will be compared with that of boys fed with milk obtained in the ordinary way. Sir Frederick holds that, by a sufficient use of fertilizers, the food value not only of milk but also of butter and eggs can be improved. The disadvantage that the milk and butter of cows which are stall fed in winter is deficient in vitamins, as compared with that of cows which feed in the fields in summer, has been manifest, but no remedy has previously been suggested.

PARIS

(From Our Regular Correspondent)

Sept. 7, 1932.

Vaccination with the B C G Outside of France

The Institut Pasteur de Paris has published a book entitled "Vaccination préventive de la tuberculose de l'homme et des animaux par le B C G." The volume comprises forty-six papers written by phthisiologists, pediatricians, obstetricians, veterinarians and bacteriologists, representing nearly all countries of the world. Among the contributors are Profs. G. Prausnitz and J. Zadeck, Germany; F. Gerlach, Austria; E. Malvoz and Bessemans, Belgium; de Assis and C. Ferreira, Brazil; Petrov, Bulgaria; Baudoin and Rankin, Canada; L. Sayé, Spain; William H. Park, Kereszturi and Overton, United States; Stanley Griffith and Cummins, Great Britain; Aldershoff and van den Bergh, Netherlands; de Schlachter, Hungary; Allaria and Borsarelli, Italy; Watanabe, Japan; Heimbeck, Norway; Wierzbowska and Zeyland, Poland; J. Cantacuzêne, Rumania; Naeslund and Wallgren, Sweden; Vanicek, Czechoslovakia; Tzekhnowitzer and Jakhnis, Ukraine; A. Saenz, Uruguay, and Kostic-Yoksic, Yugoslavia. The trials of the method have been carried out systematically for several years. The authors have reached the same conclusions, which can be summed up as follows: "The B C G vaccine is certainly harmless. It confers on the organism a manifest resistance to tuberculous contagion." Investigators who have tried to restore the virulence of the B C G cultures have not been successful. Their experiments served only to demonstrate its stability. The fear of using a living vaccine is, moreover, a false principle of vaccinology; for the smallpox vaccine of Jenner and the Pasteur vaccines against anthrax, swine erysipelas, chicken cholera and rabies are living vaccines. Furthermore, living vaccines are the only ones that confer enduring immunity. No killed vaccine and no bacillary extract has been found effective against tuberculosis. Immunity against tuberculosis continues only as long as the organism is infested with a number of virulent or attenuated bacilli. The work emphasizes the unquestionable value of experiments carried out by William H. Park and his co-workers, by F. Gerlach and by de Assis, which admit of no doubt that the trials reported by other authors, with unfavorable conclusions, which have troubled for some time medical opinion, were based on errors of observation and faults of technic. The protective influence of the B C G vaccine against contamination and virulent superinfections is no longer questionable. All these papers confirm that the children and the young animals that were inoculated with the B C G vaccine at an early age, before having been exposed to any accidental virulent contamination, present a manifest resistance to contagion, even though they remain in a tuberculous environment. It has been further noted that children thus inoculated resist all contagious diseases better than unvaccinated children born and brought up under the same conditions, for the B C G vaccine confers, in addition to the specific immunity, a veritable general immunity. The general child mortality has diminished considerably in all countries in which vaccination with the B C G has been widely employed; for example, Rumania, Sweden, Poland and Uruguay. Adding the numbers of persons vaccinated in the various countries from which reports have been received, a total of 443,656 is attained. The child mortality from all causes in these countries is 7.7 per cent for the vaccinated children and 15.3 per cent for the unvaccinated children, the mortality among the vaccinated being thus nearly 50 per cent less than among the unvaccinated children. In France, where up to May 1 of this year 454,000 children have been vaccinated, the relation between the general mortality of the vaccinated and the unvaccinated children shows about the same difference. Furthermore, the general condition, the growth and the weight of the vaccinated children were always proportionately better. In addition, Jakhnis carried out a characteristic

comparative experiment at Kharkov on identical twins. In view of these results, the Rumanian author expressed the opinion that all the new-born, without distinction, should be inoculated with the B C G vaccine, and not only those born into a contaminated environment.

Poisoning from Carbon Tetrachloride

The increasing use of carbon tetrachloride for the extinguishing of fires, for the removal of grease in industry and also in therapeutics, is increasing the cases of poisoning, so that the Société des médecins des hôpitaux de Paris, at a recent session, demanded that this substance be listed among the dangerous poisons. Several cases of poisoning, some fatal, have been reported. Some of the victims have been automobilists who cleaned their cars in a poorly ventilated garage; other persons were poisoned when carbon tetrachloride was used in fire extinguishers in cellars and basements. Mr. Pagniez has observed three new cases at the Hôpital St. Antoine. In one case, a workman was employed in a dyeing establishment in an atmosphere that was sometimes saturated with the vapors of carbon tetrachloride. He presented grave intestinal disorders, complicated at the end of a week by nephritic symptoms, with oliguria, generalized edema, rather marked hypertension and azotemia. These symptoms, however, all disappeared within a month without leaving apparently any sequels. In two other workmen in the same shop, under the same conditions, the intoxication developed in a different manner. One of these men, who had been working in the poisonous atmosphere only two hours, developed symptoms similar to those of the workman first mentioned but with the difference that they soon ended fatally. The other man who had been working much longer in this shop experienced only slight and transitory disturbances, which did not make it necessary to stop his work.

It seems apparent, therefore, that as regards carbon tetrachloride there is an individual coefficient of resistance, which, one might assume, is in direct relation with the state of the person's kidneys and liver. The symptoms that are produced when the carbon tetrachloride is used in special fire extinguishers (which are coming to be widely used) are not so surprising, for when the tetrachloride comes in contact with fire it is decomposed and produces carbon oxychloride or phosgene, the terrible effects of which are well known. But it has been shown that even in a cold environment it may throw off toxic vapors. Messieurs Charles Richet, Jr., and R. Couder reported, in turn, a similar observation to that of Mr. Pagniez's first case. A man was employed in a dyeing establishment in which carbon tetrachloride was used for the removal of grease. The symptoms were vomiting, uremia, nephritis and oliguria. The patient recovered completely in a few weeks. Mr. Flandin, on the other hand, reported symptoms of pulmonary edema and effects resembling those of war gas used by the Germans in the recent war, with production of hepatonephritis. Carbon tetrachloride, sometimes used in connection with a shampoo and the treatment of seborrhea oleosa, produced, in some subjects, dermatitis and erythemas. Finally, Mr. Abrami recalled the disorders produced, in the colonies, by carbon tetrachloride when used internally as a vermicide.

Enlargement of the University City in Paris

The university city in Paris, which is growing constantly, is composed of separate dormitories containing lodgings for students grouped according to the country from which they came. The city of Paris has decided to add a building that will contain apartments for professors, who often come from cities in the provinces and with difficulty find suitable apartments in the capital within the means at their command. The new building will occupy the site of an old army building that is to be razed, in the area of the old fortifications and near to the dormitories of the students. The arrangements in the new building will be somewhat different. The students need only individual rooms and a few halls to use in common, such as refectories, libraries, lecture rooms and recreation rooms. The professors are usually married men and have families. It will be necessary, therefore, to provide apartments containing several rooms, with kitchen and bathroom. This will necessitate the erection of a large building to contain eighty-eight apartments, as follows: one apartment of 8 rooms; thirteen apartments of 7 rooms; twenty-six apartments of 6 rooms; thirty-five of 5 rooms; nine of 4 rooms; two of 3 rooms, and two of 2 rooms. In addition there will be fifty individual rooms, together with 105 storerooms for bicycles, perambulators and the like. These apartments will be reserved for professors in the university and the secondary schools.

BERLIN

(From Our Regular Correspondent)

Aug. 29, 1932.

Petition to Prevent Overcrowding of the Profession

The Deutscher Aerztevereinsbund, acting jointly with the Verband der Aerzte Deutschlands, has sent copies of an urgent petition to the federal ministry of the interior, the Prussian ministry of public welfare and the administrative boards of the universities, calling attention to the rapid increase in the number of medical students and demanding that some form of restriction be imposed to check this dangerous trend.

It is emphasized that further delay will promote radicalism among young physicians dissatisfied with present conditions. The depression has not, the petition points out, led to more sober judgment in the choice of a vocation or profession. In the summer semester of 1931, 4,467 medical students were enrolled in the universities, but that number has now increased. In the opinion of the medical profession, the conditions in the lecture rooms of the universities defy description. That is true particularly of Berlin, Bonn and Breslau, in the clinics of Düsseldorf, in Frankfort-on-Main, Greifswald and Halle, and likewise in Königsberg, Leipzig, Kiel and Münster. In many of these universities, lecture rooms are so overcrowded that camp chairs have to be used in the aisles, and sometimes students are seen sitting on the staircases as the best available point of vantage for hearing lectures.

The medical profession thinks it is not justified to wait for the effects of a reform in the distant future. Physicians urge that it is not endurable that unlimited numbers of students be admitted to medical schools when the authorities know that they cannot be given thorough training in return for their money expended. In the petition, they demand that no more students be admitted to lectures and courses than the facilities justify. The physicians point out that the present facilities are quite equal to the training of all the new physicians that are likely to be needed. It is emphatically emphasized that there is an urgent need that restrictive measures be adopted without delay. The menace to the medical profession, and particularly to the ethics of the profession, is greater than it may seem at present.

Measles from 1921 to 1930

According to statistics reported by Rodenbeck in the federal health bulletin, the mortality from measles during the decade 1921 to 1930 remained about normal in most European countries. In Norway and Poland, however, the figures dropped far below the average, whereas in Spain an unusually high mortality was reported. The highest mortality rate for measles in Germany was 13.4 per hundred thousand of population, in 1923, while the lowest rate, 2.6, was reported the following year. In England, the highest mortality rate was three and one-half times the lowest rate, while in Switzerland the highest rate was twenty-three times the lowest rate. The explanation for this rapid fluctuation of the mortality rate is that, after a wave of measles subsides, the part of the population that is susceptible is at first small but is increased, after a number of years, by the oncoming generation. The peak in the seasonal

incidence of measles is observed, in most countries, in the spring. The mortality ranges around 1 per cent. There are no very reliable statistics on the morbidity, for, even in those countries in which measles is notifiable, by no means all the cases are reported.

Short Wave Therapy

In recent months, short wave therapy has awakened considerable interest. The names of the physicist Esau and the internist Schliephake of the University of Jena are mentioned in this connection. The purpose of short wave therapy may be a strengthening of the general defense forces of the organism or it may be justified by the alleged immediate local effect. Schliephake pointed out before the Berlin Medical Society that the short waves furnish a means of direct attack on pathologic foci, which heretofore was possible only through the use of roentgen rays. The short waves employed have a length of several meters and are sometimes referred to as "meter waves." Professor Esau demonstrated the "Siemens ultra short wave therapy apparatus."

This research was begun in 1926. A study of the mode of action of the "meter wave" was made possible by the production by Professor Esau of waves of great energy. The difference in the action of these short waves, as compared with all other electric currents, is based on the fact that the action passes through the body without resistance and affects all tissues in a uniform manner.

The various wavelengths produce a diverse effect, which is in direct relation to the ionization of the tissues. In an experiment it was shown that in various substances that, thrown in a heap, are subjected to the field, a differentiation in the amount of heat produced in the various substances is plainly observable and that by the substitution of another wavelength the mutual relation of the heat produced in the several substances will be changed. These results cannot be applied as yet, in a practical way, to man; it has been shown, however, that the destruction of bacteria in the short wave field depends on the length of the wave. Changes in the red and the white blood count and in the protein values of the blood serum may be observed. The blood sugar level is changed, especially on application of the wave to the brain and the region of the pancreas. From the standpoint of therapeutics the speaker referred chiefly to furuncles, carbuncles and whitlows, which are cured in an unusually short time by resorption of the pus. Good results were secured also in purulent conditions of the maxillary sinus; even patients with empyemas of long standing became entirely rid of their symptoms. In empyemas of the pleura, the short wave treatment effected striking improvements. This mode of treatment is susceptible of further development and it opens to scientific research many enticing prospects. Few experiments on man have yet been made with the method. The results, it is true, are promising but they are based on so few cases that extensive further research will be needed.

Symptoms of Aging in Relation to Life Expectancy

For some time, research has been carried on in the institute for mathematical statistics at the University of Göttingen on the connection between old age symptoms and length of life. The well known observation that there is a wide range of difference between the ages at which the hair of persons turns gray, and the fact that the date of such change stands in a widely different relation to the person's general condition, reveal that the event reflects a relationship that is sometimes close and sometimes more remote. The main question is how close the connection is between these symptoms and the aging of the whole organism. The institute directed its attention first to presbyopia, since authentic clinical statistics on that subject were available. Research on the type of reading glasses used by persons now deceased, with relation to the age at death, was carried out by Fräulein Dr. Heidemann, who used the statistics of two private practitioners and of the Eye Clinic in Göttingen, and were continued by Dr. H. Steinhaus, who utilized the material of the Leipzig Eye Clinic. The work by Dr. Heidemann revealed a clear connection of events, which was clarified still further when a differentiation according to the causes of death was undertaken. It was found that in the cases in which the deceased had died a "natural" death there was a much more marked connection between the degree of presbyopia and life expectancy, which is readily explained by the fact that a "natural" death is determined in the main by the exhaustion of vital forces.

Death of Professor Schmorl

The death of Prof. Dr. Christian Georg Schmorl, the former director of the pathologico-anatomic institute and of the bacteriologic research institute at the Stadtkrankenhaus Friedrichstadt, in Dresden, at the age of 72, is announced. The deceased was regarded as one of the most eminent investigators of this century, his international fame being based chiefly on research on the diseases of the bones and spinal column, rickets and infantile scurvy, or Barlow's disease. His name is associated with a number of such medical terms as Schmorl's furrow and Schmorl's method for staining tubercle bacilli.

NETHERLANDS

(From Our Regular Correspondent)

Aug. 18, 1932.

Changes in Administration of Public Health Service

Dr. Terburgh has reported on health conditions in the Netherlands and given some interesting data on the application of the laws concerning the practice of medicine. It has been about ten years since the "Law Pertaining to Hygiene" went into effect. This law reorganized the public health service of the Netherlands by abolishing the system of regional health officers and substituting a more centralized system. The health officers are now assigned to the whole country as their territory and the work is divided among them on a highly specialized basis. Among the legislative acts of the same period (up to 1930), mention may be made of the laws pertaining to the crusade against contagious diseases, the protection of nurses' diplomas, the use of means of disinfection, the preparation and the sale of serums and vaccines, the practice of medicine, and the practice of dentistry. There must be added, the law suspending, for the time being, the operation of compulsory smallpox vaccination for children before their admission to school. The drafts of the laws pertaining to aid for the sick and to the district health services, drawn up in 1920, have not yet been passed on by the legislature (the first may doubtless be merged in the legislation pertaining to social insurance).

Mortality from Cancer

In the *Nederlandsche Tijdschrift voor Geneskunde*, Dr. Verrijn Stuart discusses the subject of mortality from cancer in the Netherlands. He raises the question as to whether the marked increase in the mortality from cancer (in men from 0.47 per thousand of population in 1875-1879 to 1.13 in 1925-1929, and in women, from 0.53 to 1.23) can be explained by changes in the make-up of population in favor of the older groups. The author refrained from entering on a discussion of the question of improvements in the diagnoses of the causes of death. Nevertheless, it is probable that improved diagnosis explains, to a great extent, the fact that the mortality from cancer has attained first place among the causes of death in the Netherlands. He mentions the fact that the mortality resulting from senile debility decreased for men from 1.07 per thousand of population in 1901-1905 to 0.47 in 1925-1929, and for women, from 1.33 to 0.62. Likewise, the number of persons who died without previous medical treatment dropped from 3,668 in 1913-1917 to 2,296 in 1925-1929, and the number of cases in which the cause of death could not be ascertained declined from 4,409 to 1,839.

The changes that have taken place in the structure of the population, from the standpoint of age, cannot give a complete explanation of these phenomena. In every age group, the mortality from cancer in women has increased without interruption from 1875-1884 down to 1916-1925, and also for men, except that in the last mentioned period there was no increase for the age groups 20-49 and 50-79 years. Furthermore, it appears from the figures cited that cancer mortality increases with age in both sexes, except for persons above 80, for the first period. The figures show further that cancer mortality in all the age groups is greater in the men, except for persons belonging to the 20-49 group.

Venereal Disease in the Marine of the Dutch East Indies

Compulsory prophylaxis is an important part of the crusade against venereal disease in the marine. The European personnel submits to prophylaxis, which takes place aboard the ships, whereas the natives endeavor to avoid it. The semestral reports concerning the application of prophylaxis show that 25,911 cases of exposure followed by disinfection caused 1,051 infections (percentage of infection, 4.05). In 1,419 cases of exposure followed by disinfection in the natives, there were 120 infections (percentage of infection, 8.45). The percentage of infected persons who submitted to prophylactic treatment a half hour after exposure was 2.23; more than six hours after exposure, 8.85. When the prophylactic treatment was applied by persons thoroughly familiar with the method, still better results were secured. For example, in 1,460 cases of exposure there were only 17 infections (percentage of infection, 1.1). In 231 cases of infection that developed in persons treated by competent personnel, the percentage of infection was only 0.86, in spite of the fact that in half of the cases the prophylactic treatment was applied four hours after the exposure. By applying disinfecting measures, one diminishes the chances of infection from syphilis, from soft chancre and arthritis in the proportion of 3 to 1, 1.4 to 1 and 2 to 1, respectively.

Instruction for Medical Students

The minister of public instruction has installed in his department a commission for the purpose of elaborating measures designed to facilitate the clinical instruction of students of medicine. The minister mentioned, among other things, in a public address the extension of university clinics that could be made, provided a sufficient number of patients needed for instructional purposes could be placed at the disposal of the students without the necessity of adding materially to the burden of the budget. But financial considerations, and the heavy expense that an enlargement of the existing clinics and the cost of management would involve, make it necessary to seek another solution. Various private institutions have offered to furnish students of medicine an opportunity of securing practical training. For example, the directors of the pediatric hospitals in Utrecht and Groningen and the director of the ophthalmologic institute of Utrecht give university instruction. This method, however, has not given the best results. Most students are compelled to seek to acquire their knowledge of medicine and surgery in the nonuniversity hospitals. That is what happens, especially now that competent physicians are attached to these hospitals and that many of them feel that they are called on to collaborate in the training of young physicians. Certain questions should, however, be raised: 1. Are the interests of these hospitals and of their patients given full consideration? 2. Is there adequate supervision to insure that this practical clinical training remains of a truly scientific character?

Food Served in Prisons

Dr. Banning of Zaandam has contributed to the *Nederlandsche Tijdschrift voor Geneeskunde* an article concerning the food served in the prisons of the Netherlands. The daily ration of the prisoners comprises 472 Gm. of carbohydrates, 107.1 Gm. of protein and 45.6 Gm. of fat, or a total of 2,798 calories. The ration is poor in fat, but the abundance of the two other components is such that the total caloric value is sufficient. A part of the protein (80 Gm.) is of vegetable origin. This fact need occasion no surprise, since the cost of the ration must be as low as possible. While the quantity of protein is sufficient, the preponderance of the vegetable protein over the animal protein is too great.

The food of the prisoners offers little variety. The foods that lend variety to the diet of the well-to-do are absent or exist only in small quantities. Peas and beans form a large part of the diet, and these are the foods that awaken satiety most rapidly. The food ration is such that there is no need of fearing a lack of vitamins B and C, although there may be a lack of vitamin A. It would be well if the prisoners could be examined from time to time with a view to discovering evidence of a lack of vitamin A. If signs of such a lack are found, foods containing vitamin A, such as milk and certain vegetables, should be added to the diet.

Operative Treatment of Syringomyelia

Drs. Gans and Suermandt report a case in which operative treatment of syringomyelia was employed with success. The patient, a man aged 47, was suffering from marked disturbances of sensibility, especially as regards pain and temperature, which were combined with paralysis of the lower legs. The center of the pathologic lesions was located in the dorsal and lumbar portions of the spinal cord. All modes of treatment being without effect, and the condition of the patient becoming constantly worse, an operation was decided on. Laminectomy was done, and a single cavity filled with clear fluid was found in the spinal cord. A longitudinal incision was made in the spinal cord, and provision was made, in this manner, for the permanent flow of the fluid into the subarachnoid space (the Pussepp operation). A month after the operation, the symptoms began to disappear slowly. This improvement continued and, after a few months, a considerable reduction of the paralysis and of the disorders of sensibility was observable.

ITALY

(From Our Regular Correspondent)

July 31, 1932.

Bronchial Asthma

Prof. Cesare Frugoni, at the University of Rome, and Professor Melli, his assistant, represented Italy at the international congress on bronchial asthma held at Mont Dore. The importance of the constitutional terrain and of the predisposition, or diathesis, in the development of asthma has been confirmed. Frugoni stated that the Italian school of clinical anthropology and biotypology attaches great importance, as an harmonic and nervous factor in the diathesis of asthma patients, to the excitation of the vagal and parasympathetic system. Abrami, while recognizing that the more grave phenomena are to be attributed to vagotonia, pointed out that other symptoms are certainly due to excitation of the sympathetic nerve, and hence the asthmatic syndrome must be regarded as both hypervagal and hypersympathetic, or as amphotonic, as it is sometimes incorrectly termed. Dr. Della Palma emphasized the diagnostic value of eosinophilia in the blood, as well as in the sputum, of asthma patients.

As regards pathogenesis, Frugoni does not exclude the relations to asthma of anaphylaxis. Professor Melli, his assistant, has observed the presence of proteolytic ferments (Abderhalden) in the blood serum of patients with asthma, although he did not observe deviation of the complement.

In the preparation of antigens for the skin reaction, Frugoni prefers the technic proposed by Walker. The material to be tested (pollens, hair, feathers) is dried, and, when it is to be

used, a suspension in oil is prepared, a few drops of which are applied to the scarified skin of the patient. The skin reaction is to be regarded as positive for a given antigen when, after a few minutes, a papule appears. The search for the antigens in bronchial asthma is of prime importance, since it enables one to establish treatment with vaccines. If the antigen is a food, small doses of this factor may be ingested every day as anti-allergic treatment.

As regards treatment for asthma, the greatest efficacy is ascribed to epinephrine, in doses of 0.25 mg. Frugoni has not found the curative effects of ephedrine constant. Another useful remedy is the intravenous injection of calcium salts.

Anopheles Mosquitoes Without Malaria

Dr. Frongia presented recently to the Società di cultura medica Novarese the results of research on anophelism without malaria, particularly with reference to the rice fields. He found that, while the anopheles index in the rice fields is at a constant high level, the anopheles rarely become infected with malaria. No persons who are gamete carriers have come from malarial regions and brought new foci of infection to the rice-growing area. In the rare cases in which the anopheles of the rice fields become infected, the form of malaria that they produce presents mild symptoms and yields readily to quinine without causing recurrences. The constancy of the negative observations as regards malaria in the anopheles of the rice fields cannot be explained in changed habits of the anopheles, for they are still fond of human blood. The increased resistance of the anopheles of the rice-growing regions is regarded as associated with changes in the somatic characters of the insect. According to the speaker, an organic incapacity to bring about the union of the gametes in its celomic cavity, which is followed by the maturation of the oocysts, has developed in the organism of the anopheles.

Menstrual Fever in Tuberculous Persons

Professor Luzzatti has observed sixty-two cases of fever, during the menstrual period, in women affected with pulmonary tuberculosis. In eighteen cases, fever occurred during and after the blood flow, together with an aggravation of the pulmonary lesions. Luzzatti holds, with others, that in such cases the fever is actually due to the infection in question. In forty-four of the women, the fever dropped with the beginning of the blood flow. The patients presented the constitutional characters of the longilineal, asthenic habitus. If premenstrual fever is an indication of tuberculous lesions, instead of disappearing it should increase with the beginning of the blood flow. Professor Luzzatti thinks that the phenomenon, which has been regarded as pointing to latent or beginning tuberculosis, is only a coincident symptom of mild hyperthyroidism.

Meeting of Antituberculosis Society

Under the chairmanship of Prof. Eugenio Morelli, the Latium chapter of the Associazione per la lotta contro la tubercolosi has held several sessions in Rome.

Monaldi presented a paper on the use of pneumoperitoneum in the treatment of intestinal tuberculosis. He employed the method in five cases in which the specific abdominal type was secondary to pulmonary tuberculosis. In two cases he observed the disappearance of all clinical symptoms, and in two other cases an improvement; in the fifth case there was only a remission of the diarrhea and the pains. Of the various theories advanced to explain the mechanism of pneumoperitoneum (chemical stimulation resulting from the oxygen, increased endo-abdominal pressure, hyperemia of the peritoneum and of the intestinal serosa), the speaker held that, at present, a mechanical action could not be excluded.

The gas in the abdominal cavity is carried upward and separates the diaphragm and the abdominal wall from the viscera, lessening the effects of the respiratory excursions on the motor and secretory activity of the intestine.

Luzzatto spoke on contralateral exudative pleuritis in connection with artificial pneumothorax, a complication relatively rare in pneumothorax. He held as unlikely the supposition that pleuritis is due to the pneumothorax, for many factors favor an independent origin of the pleuritis as an expression of the revival of pleuropulmonary foci of the opposite side of the lung. Treatment should consist in the evacuation of the fluid with replacement by air, a contralateral pneumothorax of low pressure and of short duration being thus instituted for the purpose of preventing the formation of pleural adhesions and of forestalling complications associated with the rapid evacuation of the exudate by thoracentesis. This, owing to the peculiar pulmonary circulatory condition created by the pneumothorax, would favor the appearance of pulmonary edema.

Motte and Bormioli presented a paper on the pathogenesis of tuberculosis of the larynx. Considering the theory that laryngeal tuberculosis takes place through diffusion by way of the lymph paths, from a primary pulmonary or tonsillar focus, the speakers reached the conclusion that all the lymph vessels of the tonsils, epipharynx and larynx have ample intercommunication. Cerutti, from a study of a hundred roentgenograms, by which are revealed diffuse chronic tuberculous lesions in the left pulmonary field with relative integrity of the right lung, concludes that the lesions of the left lung furnish the greater percentage of pulmonary cirrhosis and supply the majority of the cases favorable for thoracoplasty.

Agnello reported a series of measurements obtained from ninety patients during therapeutic pneumothorax. It appears that a constant increase of the chest girth was observed affecting the side treated.

Besta spoke on bilateral peripheral venous pressure in monolateral therapeutic pneumothorax. From an examination of 110 patients, he found that generally monolateral increase of the venous pressure is observed in the side to which the pneumothorax has been applied. The greatest differences in pressure are found in the first months of the pneumothorax.

Mediastinal Pleuritis in Children

Professor Maggiore of Messina, at a meeting of the Federazione nazionale antitubercolare, discussed mediastinal pleuritis in children. Sometimes it appears as a primary manifestation, and sometimes it follows measles, influenza and pertussis. It does not present any special diagnostic signs. The speaker emphasizes the tendency of the patient to assume a semierect position with the trunk supported on cushions. Two types of mediastinal pleuritis may be distinguished: the dry, or plastic, type and the exudative type. The first is characterized by costodiaphragmatic indurations and adhesions. The second is serofibrinous and purulent, being often confounded with pericarditis or ordinary pleuritis. The serofibrinous forms are of tuberculous origin, those that are purulent being associated with other infections. There may be anterior or posterior localizations.

Radiologic exploration is the only means of a sure diagnosis; several roentgenograms should be made in various postures. In the anterior plastic form, a triangular shadow may be noted that merges with the cardiac notch, the edge of which it touches on one side, while on the other side it touches the diaphragm. Posterior plastic forms are characterized by a streaming shadow that grazes the spinal column. In the anterior exudative forms, with moderate effusion, the shadow adjoins that of the heart and extends downward, like a streamer, to the diaphragm. When the effusion is considerable, it is not always possible to distinguish it from a pericardiac effusion. The posterior exudative forms produce shadows of diverse location and appearance. As to therapy, the ordinary treatment for active tuberculosis is useful, and satisfactory results are secured from actinotherapy. In the case of effusion, the withdrawal of the fluid and the use of autoserotherapy have given good results.

Marriages

HARRY H. SAND, Lexington, Ky., to Miss Mildred Alyne Grauman of Helena, Ark., September 3.

WILLIAM L. MACKEDON to Miss Ethel Margaret Theisen, both of Milwaukee, at Racine, July 13.

DOYLE M. LOEHR, Moscow, Idaho, to Miss Alice E. Affleck of Spokane, Wash., recently.

HARVEY G. BLAND, Etowah, Tenn., to Miss Euenice Major of Lehman, Pa., August 24.

GEORGE EDWARD WHALEN to Miss Rosalie M. Keller, both of Milwaukee, August 18.

ALOIS F. KUSTERMANN to Miss Helen M. Schwaller, both of Milwaukee, August 18.

RAYMOND A. TOEPFER to Miss Carla A. Rhode, both of Milwaukee, August 11.

GEORGE J. GUMERMAN to Miss Josephine Berdoll, both of Milwaukee, August 3.

JOHN O. DIETERLE to Miss Charlotte Logemann, both of Milwaukee, June 22.

JAMES H. BILLER to Miss Ida T. Schmerling, both of Milwaukee, August 14.

Deaths

Astley Paston Cooper Ashhurst, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1900; professor of clinical surgery at his alma mater and the graduate school of medicine; member of the American Surgical Association and the Society of Clinical Surgery; fellow of the American College of Surgeons; served during the World War; surgeon to the Episcopal Hospital, Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases; co-author of "Enlargement of the Prostate" and "Surgery of the Upper Abdomen"; author of "An Anatomical and Surgical Study of Fractures of the Lower End of the Humerus" and "Surgery, Its Principles and Practice"; aged 56; died, September 19.

Sidney Yankauer ⊕ New York; College of Physicians and Surgeons in the City of New York, 1893; member of the American Academy of Ophthalmology and Oto-Laryngology, American Laryngological, Rhinological and Otological Society, American Bronchoscopic Society and the American Association of Thoracic Surgery; fellow of the American College of Surgeons; served during the World War; on the staffs of Mount Sinai, Beth Moses, Montefiore, Broad Street, Beth David and Beth Israel hospitals; aged 60; died, August 27, of heart disease.

Phil Boller ⊕ Los Angeles; College of Physicians and Surgeons, Los Angeles, 1911; assistant professor of gynecology, College of Medical Evangelists; fellow of the American College of Surgeons; attending gynecologist to the Hospital of the Good Samaritan and the Good Hope Hospital; senior attending surgeon (gynecological service), General Hospital; aged 45; died, August 29, of a self-inflicted bullet wound.

James Clifton Lumpkin ⊕ Baltimore; Baltimore Medical College, 1898; formerly clinical professor of surgery, University of Maryland School of Medicine and College of Physicians and Surgeons; fellow of the American College of Surgeons; chief surgeon to the Maryland General Hospital and consulting surgeon to the University Hospital; aged 62; died, September 12, of heart disease.

David Barrow ⊕ Lexington, Ky.; Medical Department of the University of Louisiana, New Orleans, 1880; member of the American Surgical Association and Southern Surgical Association; fellow of the American College of Surgeons; served during the World War; visiting and consulting surgeon to the Good Samaritan Hospital; aged 73; died, August 18, of heart disease.

Ephraim Daniels Klots, New York; College of Physicians and Surgeons in the City of New York, 1894; associate professor of clinical medicine, New York Homeopathic Medical College and Hospital; on the staffs of Metropolitan, Fifth Avenue and Flower hospitals; aged 62; died, August 12, in the Rhode Island Hospital, Providence, of gastric hemorrhage.

Gordon Griffith St. Clair, Duluth, Minn.; University of Michigan Medical School, Ann Arbor, 1907; member of the Minnesota State Medical Association; served during the World War; aged 49; on the staffs of St. Luke's Hospital and St. Mary's Hospital where he died, August 16, of pulmonary and laryngeal tuberculosis.

William Clement Cotton ⊕ Atwater, Calif.; Illinois Medical College, Chicago, 1910; Chicago College of Medicine and Surgery, 1911; past president of the Merced County Medical Society; served during World War; for many years county health officer; aged 49; died, August 21, in the Mercy Hospital, of influenza.

William Marshall Follette, Seneca Falls, N. Y.; Homeopathic Hospital College, Cleveland, 1887; member of the Medical Society of the State of New York; for many years health officer; formerly president of the board of education; aged 71; died, September 9, of pernicious anemia.

Frank Leslie Martine ⊕ Newark, N. J.; George Washington University Medical School, Washington, D. C., 1905; on the staffs of the Newark Memorial, Presbyterian, Women's and Children's and Beth Israel hospitals; aged 53; died, August 15, of carcinoma of the colon.

Gaston J. Greil, Montgomery, Ala.; Columbia University College of Physicians and Surgeons, New York, 1901; member of the Medical Association of the State of Alabama; past president of the Montgomery County Medical Society; aged 54; died, August 31, of heart disease.

Luther Cochran Davis ⊕ Fairmont, W. Va.; University of Pennsylvania School of Medicine, Philadelphia, 1920; fellow of the American College of Physicians; on the staff of the Cook Hospital; aged 37; was killed, September 5, in an automobile accident.

Luther Biggs Palmer, Paris, Texas; Arkansas Industrial University Medical Department, Little Rock, 1892; member of the State Medical Association of Texas; on the staff of the Sanitarium of Paris; aged 62; died, June 3, of cerebral hemorrhage.

Thomas Benton Coopwood, Lockhart, Texas; Medical Department of the Tulane University of Louisiana, New Orleans, 1893; member of the State Medical Association of Texas; county health officer; aged 70; died, August 9, of acute nephritis.

Lawrence Matt Shaw, Osceola, Neb.; State University of Iowa College of Medicine, Iowa City, 1889; member and past president of the Nebraska State Medical Association; aged 64; died, August 15, of diabetes mellitus and heart disease.

Edwin A. Streich ⊕ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; on the staff of St. Bernard's Hospital; aged 56; died, August 25, of chronic valvular heart disease.

John William Harrison, Gross Pointe, Mich.; Detroit College of Medicine, 1896; member of the Michigan State Medical Society; aged 60; died suddenly, August 17, in St. Joseph's Mercy Hospital, Pontiac, of heart disease.

William Henry Grainger, Winthrop, Mass.; Medical Department of the University of the City of New York, 1870; member of the Massachusetts Medical Society; aged 88; died, September 1, of carcinoma of the transverse colon.

Robert Wesley Hale, Fostoria, Ohio; Beaumont Hospital Medical College, St. Louis, 1891; member of the Ohio State Medical Association; on the staff of the Fostoria Hospital; aged 64; died, August 13, of cerebral hemorrhage.

Irene Plummer Chandler, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1913; medical inspector for the board of education; aged 43; was found dead, September 12, of poison, presumably self-administered.

Joseph Wesley Malone ⊕ Brooklyn; College of Physicians and Surgeons, Baltimore, 1888; on the staffs of the Kings County and Victory Memorial hospitals; aged 65; died, September 10, of gastric ulcer and arteriosclerosis.

John S. Allen, Murfreesboro, Tenn.; Medical Department, University of Tennessee, Nashville, 1899; aged 57; died, September 3, in the Protestant Hospital, Nashville, of septicemia, as the result of a slight injury to the elbow.

William F. Bastendorf, Detroit; Michigan College of Medicine and Surgery, Detroit, 1900; member of the Michigan State Medical Society; aged 71; died suddenly, August 13, of coronary thrombosis and angina pectoris.

George W. Dickens, Leslie, Ark. (licensed, Arkansas, 1903); member of the Arkansas Medical Society; aged 55; died, August 19, in a hospital at Little Rock, of acute parenchymatous nephritis and chronic myocarditis.

James Fletcher Henderson Gorsuch, Fork, Md.; University of Maryland School of Medicine, Baltimore, 1876;

member of the Medical and Chirurgical Faculty of Maryland; aged 86; died, September 7, of senility.

Fred M. Hazlewood, Vassar, Mich.; Louisville (Ky.) Medical College, 1902; member of the Michigan State Medical Society; aged 53; died, September 6, in the Samaritan Hospital, Bay City, of chronic nephritis.

William Orville Osborn ⊕ Cleveland; Cleveland Medical College, Homeopathic, 1895; Medical Department of Western Reserve University, Cleveland, 1898; aged 65; died, September 3, of arteriosclerosis and uremia.

William H. Neely, Terrell, Texas; University of Louisville (Ky.) School of Medicine, 1886; member of the State Medical Association of Texas; health officer of Terrell; aged 70; died, August 19, of pneumonia.

James Howard Burns ⊕ Carrollton, Ill.; Eclectic Medical Institute, Cincinnati, 1892; past president of the Greene County Medical Society; served during the World War; aged 64; died, September 4, of heart disease.

Jacob Rosenthal, Detroit; University of Pennsylvania School of Medicine, Philadelphia, 1900; served during the World War; aged 55; died, August 12, of coronary thrombosis and angina pectoris.

Augustus Maclanchlan Tupper, Rockport, Mass.; Harvard University Medical School, Boston, 1870; member of the Massachusetts Medical Society; aged 84; died, August 22, of chronic myocarditis.

James Franklin Allen, Jacksonville, Fla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1895; aged 63; died, July 30, at the home of his daughter in Fort Pierce, of acute myocarditis.

Charles H. Cumston ⊕ Brunswick, Maine; College of Physicians and Surgeons in the City of New York, 1877; on the staff of the Brunswick Hospital; aged 83; died, August 22, of heart disease.

William Harvey Robertson, Princeton, Ala. (licensed, Alabama, 1908); member of the Medical Association of the State of Alabama; aged 51; was killed, August 24, in an automobile accident.

Carlisle Hayes Harrison, Cottondale, Fla.; University of Louisville (Ky.) School of Medicine, 1920; member of the Florida Medical Association; aged 38; died, August 23, of angina pectoris.

Thomas N. Vincent, Washington, D. C.; Jefferson Medical College of Philadelphia, 1889; aged 68; died, August 15, in the Georgetown University Hospital, of cerebral thrombosis and heart disease.

Otto Frederick George Bjorkman ⊕ Gladstone, Mich.; Medical Department of Omaha University, 1895; coroner and formerly health officer; aged 65; died suddenly, August 25, of heart disease.

James Manning Kent, New York; Columbia University College of Physicians and Surgeons, New York, 1903; served during the World War; aged 56; died, August 19, of heart disease.

Clifton Hopewell Hogan, Satartia, Miss.; University of Virginia Department of Medicine, Charlottesville, 1905; aged 51; died, August 18, of chronic nephritis and mitral regurgitation.

Julian Pinckney Thomas, New York; University of Georgia Medical Department, Augusta, 1887; aged 65; died, May 10, in the Hospital for Joint Diseases, of lobar pneumonia.

Edmond La Brie, Sacramento, Calif.; University of Bishop College Faculty of Medicine, Montreal, Que., Canada, 1874; aged 80; died, July 6, in the Sutter Hospital, of arteriosclerosis.

Elijah Curtis Bennett, Hermosa Beach, Calif.; University of Louisville (Ky.) School of Medicine, 1882; aged 79; died, July 15, of pulmonary edema and chronic myocarditis.

Austin Joseph Pressey, Ontario, Calif.; Cincinnati College of Medicine and Surgery, 1876; aged 86; died, June 24, of prostatic hypertrophy, arteriosclerosis and myocarditis.

George Augustus Stesel, Buffalo; University of Buffalo School of Medicine, 1908; aged 58; died, September 9, in the City Hospital, of erysipelas of the face and septicemia.

Joseph Hall Brewster ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1892; aged 63; died, August 28, at his home in Bala-Cynwyd, Pa., of cerebral hemorrhage.

Lucie Bragg Walker Anthony, Sumter, S. C.; Meharry Medical College, Nashville, Tenn., 1907; aged 59; died, August 22, in Baltimore, of arteriosclerosis and hypertension.

Abraham Francis Lent, Brooklyn; Long Island College Hospital, Brooklyn, 1895; aged 60; died, August 25, in the Long Island College Hospital, of myocarditis.

John George Gehring ⊕ Bethel, Maine; Medical Department of Western Reserve University, Cleveland, 1885; aged 75; died, September 1, of coronary sclerosis.

R. Edmond Dixon, Hanford, Calif.; University of Virginia Department of Medicine, Charlottesville, 1891; aged 71; died in August, of fatty degeneration of the heart.

Garrett Nelson Banker, Kew Gardens, N. Y.; Bellevue Hospital Medical College, New York, 1889; aged 69; died suddenly, September 7, of heart disease.

Alfred John Hennings, Kadoka, S. D.; Sioux City (Iowa) College of Medicine, 1898 and 1902; aged 55; died, July 18, in St. Mary's Hospital, Rochester, Minn.

E. M. Cherry, New Providence, Tenn.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1895; aged 59; died suddenly, August 23, of heart disease.

Eli Harvey Westfall, Beloit, Ohio; Medical Department of Western Reserve University, Cleveland, 1889; aged 70; died suddenly, August 24, of heart disease.

Hugh Benjamin Johnson, Tomah, Wis.; Northwestern University Medical School, Chicago, 1892; aged 65; died, August 12, of cerebral hemorrhage.

John Baldwin Long, Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1882; aged 78; died, August 23, of arteriosclerosis.

Willis F. Persons, Mogadore, Ohio; Medical Department of Western Reserve University, Cleveland, 1884; aged 75; died, August 24, of arteriosclerosis.

Herman Jacob Peters, Ragersville, Ohio; Medical College of Ohio, Cincinnati, 1870; Civil War veteran; aged 89; died, September 6, of heart disease.

Charles John Paul Beirne, Alpha, Ill.; St. Louis College of Physicians and Surgeons, 1902; aged 64; died, September 6, of poison, self administered.

Louis Edelman, Washington, D. C.; Curtis Physio-Medical Institute, Marion, Ind., 1890; aged 63; died, August 30, of carcinoma of the prostate.

John Francis Hennelly, Brooklyn; Fordham University School of Medicine, New York, 1916; aged 41; died, September 8, of arteriosclerosis.

Henry Draper Hazzard ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1891; aged 68; died, September 14, of cirrhosis of the liver.

William Andrew Haynes, Howel, Ky.; University of Louisville School of Medicine, 1889; aged 68; died, August 25, of cerebral hemorrhage.

John Whiteaker Ballance, Marion, Ill.; Rush Medical College, Chicago, 1896; aged 61; died, September 9, of pulmonary tuberculosis.

Christo Argyr, Pueblo, Colo.; University of Athens School of Medicine, Athens, Greece, 1891; aged 73; died, June 22, of pernicious anemia.

Isaac J. Beard, Long Beach, Calif.; St. Louis College of Physicians and Surgeons, 1896; aged 67; died, September 1, of heart disease.

John Stobo Hamilton ⊕ Bathgate, N. D.; Kentucky School of Medicine, Louisville, 1902; aged 66; died, August 22, of angina pectoris.

L. Rorick Bennett, Pasadena, Calif. (licensed, Michigan, 1900); aged 88; died, May 9, of thyrotoxicosis and shock following a fall.

Charles N. Harrison, Fulton, Ill.; National Medical University, Chicago, 1903; aged 68; died, August 15, of myocarditis.

Charles Henry Christensen, Los Angeles; Chicago College of Medicine and Surgery, 1909; aged 50; died, June 27.

George Bonaparte Wood, Emporia, Va.; College of Physicians and Surgeons, Baltimore, 1890; aged 74; died, June 9.

Robert Dunlap, Lueders, Texas (licensed, Texas, under the Act of 1907); aged 52; died, August 17, of heart disease.

Walter Q. Webb, Spokane, Wash.; Omaha (Neb.) Medical College, 1885; aged 69; died, July 16, of pyonephrosis.

Robert Lee Hollis, Hayston, Ga.; Atlanta Medical College, 1889; aged 68; died, August 18, of heart disease.

Guido Schaff, Cameron, Mo. (licensed, Missouri, 1898); aged 78; died, August 14, of lobar pneumonia.

James McLean, Enid, Okla.; Medical College of Fort Wayne, Ind., 1877; aged 92; died, June 13.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

POSSIBLE TRAUMATIC ARTHRITIS

To the Editor:—Early in October, 1931, while carelessly glancing at a paper in my right hand and manipulating my automobile with the left, I ran into a parked car. A sudden realization of the danger caused me to throw out my right hand at the wheel; my index finger struck something, causing considerable pressure at the phalangeal digital joint of that hand. Some swelling and pain resulted, which went untreated, as I thought that resolution would naturally occur. Time went on and the condition has progressed. Various joints of the right hand become sore and swollen, seeming to change from point to point and get better, then worse. The left hand also became affected and the fingers sore, the pain varying as in the other hand. During this long period, on the advice of physicians, I have tried dieting (cutting out meat), diathermy, and a course of salicylates, only to see the condition grow steadily worse. I am 70 years old but move with the activity of a young man. I am 5 feet 11 (180 cm.) and weigh 170 pounds (77 Kg.) in summer clothes, 10 of these pounds having been taken on since I quit smoking last June. At that time I suffered from periodic tachycardia, lasting for many hours at a time. All of this disappeared with the tobacco habit. At that time I went through several hospital examinations for prostate, heart, gallbladder, kidneys and teeth, all dead nerves being removed from the teeth. All these organs were found to be sound. Since this rheumatism developed I have had the urine and the prostate examined by specialists. My ethmoid was curetted throughout while I was in the army. I still suffer from morning pains frequently, in the right frontal region, but roentgenograms show the frontal sinus sound, though there may be some remaining cells in the posterior ethmoid that are affected. It is possible that there is a hyperplastic condition to account for the pain. There was no history of any rheumatic condition, other than passing muscular pains such as all persons have on occasion, until this attack. Will you not give me the latest theories on the possibility of a traumatism, such as I have sustained, causing rheumatic manifestations as described. Could there be an infection without pus? A distinguished internist in New Orleans told me that such a condition is possible, according to latest observations. The physicians with whom I have discussed this case—with the exception of the internist of New Orleans—seem to have the idea that the cause is due to a focal infection and rheumatic diathesis arising elsewhere. But the Mayo Clinic (THE JOURNAL, June 14, 1930, p. 1889, in a review of 400 cases of paranasal disease by Dr. Carl M. Anderson) finds: "From clinical observation, it is known that on rare occasions an infected sinus does act as a focus, but it is so rare an occurrence that, unless careful examination and conservative investigation reveal evidence of such an infection, it may be considered of no importance." This is according to my own experience as a practitioner of otolaryngology exclusively for nearly forty years. Since this injury I have had severe lumbar pains at times and, in fact, several months ago they were all through my body; but these have practically disappeared. While the knuckles swell, there have been no active joint pains in other parts of my body that were not temporary, disappearing with the activities of the day. At times I have sharp nerve pains darting in various directions from the joint site of the original injury. These shooting pains sometimes radiate to my hand and up my right arm as evenly as a clock ticks and at times they have awakened me from my sleep. Some very pronounced traumatism must have taken place at the time of the injury and the effects are still evident in this spot. As my general health is excellent without history of a rheumatic diathesis, and I seem to be physically much younger and more active than my years would indicate, I cannot but believe that the source of the so-called rheumatic manifestations is in the injured joint. However, as an otolaryngologist, I am no authority for my own case. Please omit name. M.D., Louisiana.

ANSWER.—Traumatic arthritis has been discussed pro and con for many years. Traumatic arthritis is that type in which it seems plausible to attribute the pathologic changes and, therefore, the symptoms and roentgen appearances, to a definite trauma. One of the basic factors in arthritis is the local circulation. Tratma may interfere with circulation. True traumatic arthritis which persists following one injury is not common. But one must consider multiple minimal traumas and the summation of their effects. Every time a joint is moved, a certain minimal trauma occurs; but if the circulation of that joint is normal and there is absence of circulating toxemia or metabolic disturbances, the effect of the injury is repaired practically as soon as it occurs. However, if one of the factors just mentioned is operating, there will be a localized area of pathologic change which may result in arthritis.

One is confronted with the question as to whether an individual may not have some focus of infection at the time an injury is sustained. Another type of traumatic arthritis is due to repeated lesser stresses and strains. Trauma due to indirect violence is a factor illustrated by a fall on the outstretched hand (which may or may not result in a Colles fracture) causing injury to the shoulder with a resulting arthritis of that joint.

It has been stated that the German Orthopedic Association has dropped the term traumatic arthritis and the German insurance companies have followed their example.

Regardless of what is primary or secondary in osteo-arthritis, there always enters into the pathogenesis the factor of trauma. Trauma is the one factor which can be demonstrated in nearly every case of hypertrophic arthritis. The trauma may be of an acute nature, but in by far the large percentage of cases it is chronic and often rather insidious.

Osteo-arthritis has been compared with the wearing down of one's teeth with the passing of years, which is analogous to the wearing down of bone and joint structures under stress, strain and friction. The predisposing causes are old age, overweight, faulty posture, physical defects, metabolic and endocrine disturbances, and exposure.

There is a type of traumatic osteo-arthritis that occurs in the elbow and shoulder of persons whose work necessitates pulling heavy levers. Some believe that the baseball finger is an instance of a traumatic Heberden's node. Deforming arthritis occurs in elbows of men who work with pneumatic drilling machines. It occurs years after fractures into the joints, owing to pulverization of the bone.

In many cases of monarticular arthritis, careful inquiry reveals a trauma preceding by months and even years an inflammatory process which has been brought about by some infection, such as influenza, tuberculosis or gonorrhea.

If trauma itself can cause arthritis, a classic example is fracture of the os calcis producing a subastragalar arthritis. Another example is the arthritis that occurs in the shoulder following a Colles fracture. However, in these cases it is untenable to deny that a circulating toxemia, metabolic or infectious, is not present. Trauma in the presence of a local infection or a toxemia, metabolic or infectious, is an important and frequent cause of arthritis. Trauma is important in localizing the toxemia or infection to the injured area. Trauma is like a precipitating substance in a chemical experiment; it localizes the arthritis. It is analogous to the hot bath which brings out the rash in scarlet fever.

The history as described by this doctor-patient is suggestive of a rheumatoid, infectious or atrophic arthritis. The following are recommended:

1. Thorough search for, and eradication of, foci of infection, especially in the teeth, throat, nose, sinuses and gastro-intestinal and genito-urinary tracts.
2. Reduction in weight (about 10 pounds).
3. Reduction in carbohydrates in the diet.
4. Increase in the amount of vitamins, especially B and D.
5. Posture exercises if indicated.
6. Physical therapy, including radiant heat, gentle massage, and, to the deeper joints, well directed and well applied diathermy.
7. Vaccines both autogenous and stock, such as the Burbank, Crowe, Cecil, Wetherby and Clawson or Dawson and Boots.

FORMALDEHYDE PACKS IN UTERINE CAVITY

To the Editor:—In the July 2 issue of THE JOURNAL I observed an abstract from the *Illinois Medical Journal*, entitled "Surgery vs. Irradiation in Benign Uterine Hemorrhage." This abstract mentions modification of irradiation (packing of the uterine cavity for two minutes with plain sterile gauze, saturated with solution of formaldehyde, U. S. P.). I should like to know just what the results of such packing would be on the uterine mucosa and on subsequent menstruation. Please omit name. M.D., Iowa.

ANSWER.—The use of solution of formaldehyde in the uterine cavity in patients with premenopausal bleeding aims at a complete destruction of the mucosa with consequent cessation of both the normal and the abnormal flow. This remedy belongs in the group of local procedures such as live steam, phenol, trichloracetic acid and zinc chloride. None of these remedies have won general acceptance for the desired objective. Solution of formaldehyde, U. S. P., is the least destructive of these reagents, and therefore its use is less likely to be followed by stricture formation or necrosis with subsequent infection. The effect produced is permanent in those instances in which the patient is on the verge of the menopause and in whom there are no complications, such as myomas, pathologic conditions of the ovaries, or inflammatory disease of the adnexa. Since it is not completely reliable in the early stages of premenopausal hemorrhage, it has never become established as a standard remedy.

Radium has definitely displaced other forms of nonoperative treatment for benign premenopausal hemorrhage in the absence of complications. Hysterectomy remains the method of choice in the vast majority of instances.

KAHN AND WASSERMANN TESTS

To the Editor:—Do you feel that the following excerpt gives a fair statement of the comparative value of the Kahn and Wassermann tests?

"I. COPENHAGEN CONFERENCE. Total serums examined: 502 from syphilitic cases (treated and untreated) and 435 from nonsyphilitic cases.

"Outline of results of the Kahn test compared with seven different Wassermann tests:

Method	Author	No. of Positive Reactions	Increase in Sensitivity of Kahn Over Wassermann	False Positive Reactions
Kahn	Kahn (Univ. of Mich., Ann Arbor)	305		None
Wassermann	Harrison-Wyler (Ministry of Health, London)	210	45%	None
Wassermann	Sierakowski (Hygienic Institute, Warsaw)	195	56%	None
Wassermann	Pavlowitch (Hygienic Institute, Belgrade)	220	38%	1.3%
Wassermann	deBlasi (Hygienic Institute, Naples)	141	116%	3.7%
Wassermann	Otto-Blumenthal (Robert Koch Institute, Berlin)	260	17%	5.5%
Wassermann	Jacobstahl (General Hospital, Hamburg)	265	15%	6.6%
Wassermann	Debains (Pasteur Institute, Paris)	266	14%	10.4%

"II. MONTEVIDEO CONFERENCE. Total serums examined: 618 from syphilitic cases (treated and untreated) and 320 from nonsyphilitic cases.

"Outline of results of the Kahn test compared with seven different Wassermann tests.

Method	Author	No. of Positive Reactions	Increase in Sensitivity of Kahn Over Wassermann	False Positivs Reactions
Kahn	Kahn (Univ. of Mich., Ann Arbor)	398		None
Wassermann	Sordelli (National Bact. Inst., Buenos Aires)	347	15%	None
Wassermann	Harrison-Wyler (Ministry of Health, London)	339	17%	None
Wassermann	Sealtritti (Profilactic Inst., Montevideo)	311	28%	None
Wassermann	Torrazza (Medical School, Montevideo)	346	15%	2.6%
Wassermann	deAssis (Medical School, Rio de Janeiro)	342	16%	4.3%
Wassermann	Puppe (Sanit. Military Service, Montevideo)	282	41%	5.6%
Wassermann	Moreau (Medical School, Montevideo)	401	0.7%	15.0%

"When considering the increase in sensitiveness of the Kahn test over the average results of the 14 Wassermann tests, one finds that for every 100 positive reactions given by the Wassermann tests in cases of syphilis, the Kahn gave 129 positive reactions. In the nonsyphilitic cases, the average number of false positive Wassermann reactions for every 100 serums, was 4.

"It is evident from these two tables that the Kahn reaction was far more sensitive than the other methods in detecting syphilis and at the same time was free from false positive reactions.

"The following two sentences are taken from the League of Nations official report of the Montevideo Conference, which touches upon the Copenhagen Conference as well:

" 'Only two of the diagnostic methods compared showed (in the cerebrospinal fluid tests) absolute specificity; Kahn's "standard" test and Dr. Wyler's. Kahn's test was the more sensitive of the two as was also demonstrated by a comparison between the two methods applied to the much more ample material of 317 specimens (exclusively composed of samples of clear and fresh cerebrospinal fluid) which was made in London in 1928 at the instance of the Health Organization of the League of Nations.'

" 'The majority of serologists taking part in the Montevideo Conference agreed that, in the hands of Professor Kahn himself, the Kahn "standard" test, which (as was the case also at the Copenhagen Conference) proved to be absolutely specific and extremely sensitive, was the best of those demonstrated at the Conference.' "

Please omit name. M.D., New York.

ANSWER.—The excerpt "gives a fair statement of the comparative value of the Kahn and Wassermann tests" because it is based on results obtained under exacting experimental conditions.

Reports on the comparative value of serologic methods, which abound in the literature, are frequently based on studies carried out by workers who are more expert in one method than in others—a fact that is likely to affect the correctness of the final results. Obviously, authors of methods who are extensive contributors along such lines are especially expert in their own methods and perhaps biased toward their own work. The result is that clinicians are at a loss to know which method is the most dependable. In order to answer this question for the benefit of clinicians, the League of Nations Health Committee arranged two international competitive conferences wherein authors of methods employed their respective tests in the examinations of approximately 2,000 serums. The clinical condition of the patients from whom the serums were obtained were known only to a group of designated clinicians and syphilologists. Obviously, the results reported by the authors of the respective methods represent nearly the "final word" on the dependability of these methods. According to the tables that summarize the results of the Copenhagen and Montevideo conferences, the Kahn test gave no false positives and was more sensitive than all the Wassermann tests with the exception of the method of Moreau, which gave 15 per cent false positives. It seems "fair," therefore, to give the Kahn test credit for superiority at these two competitive conferences.

MENSTRUAL HEADACHE

To the Editor:—Please suggest treatment for a severe menstrual headache. The patient, aged 35, is a multipara who has always had dysmenorrhea. Her general health has been good except for allergic rhinitis (which is seasonal) and a tendency to bleed. Bleeding and clotting time are both increased. Repair of the perineum was done following the last pregnancy, and no local pathologic changes can be found in the genitalia. Her menstrual cycle is three weeks and the period lasts from a week to ten days and is profuse. The onset is always accompanied by a severe frontal headache associated with nausea. The headache persists two or three days and sometimes creeps from the temples to the back of the head. The final day of menstruation usually is marked by another headache, less severe. Backache and abdominal pain with the period are mild, but the headache is disabling. The basal metabolic rate has been minus 6, minus 11 and minus 8 per cent during the past year. Over a period of four years the patient has gradually lost the hearing in one ear. Examination shows that the low tones have dropped out, but some of the very high notes are heard. Please omit name. M.D., California.

ANSWER.—Headaches during the menstrual periods are common occurrences and most of them are vasomotor in origin. Since this patient has uterine bleeding more than one third of the time, there is undoubtedly a disturbance in one or more of the glands of internal secretion. The basal metabolic rates indicate that the thyroid is little if any at fault in this case. The glands that are most probably responsible for the menstrual disturbance here are the ovaries and the pituitary. The latter, and in particular the anterior lobe, is the one usually at fault in these conditions because it dominates the ovaries. If a disturbance in the anterior lobe of the hypophysis is the source of the profuse and frequent uterine bleedings, the hypodermic administration of anterior lobe preparations may help and it may also have a favorable effect on the headaches.

The headaches may be due to congestion or slight enlargement of the pituitary gland at the time of the menses. The headaches may also be due to migraine, and in this case the customary treatment for this condition should be carried out; but it is generally unsatisfactory. Whether the ear condition has anything to do with the headaches is difficult to say.

PONNDORF VACCINE FOR ARTHRITIS

To the Editor:—Please give me some information about a vaccine of German origin used in cases of arthritis and neuritis. It is not given by injection but by scarification, and from what I have heard about it, it has given gratifying results. MERRILL R. JACOBS, M.D., Chicago.

ANSWER.—The Ponndorf method is considered diagnostic and therapeutic. The material used consists of vaccine of several streptococci and tuberculin. It is in the form of a solution or a paste. The technic includes scarification and the application of the substance and the interpretation of the reaction.

Ponndorf's cutaneous vaccine B contains tubercle bacilli, tuberculin staphylococci, streptococci and pneumococci. The vaccine is used with a technic similar to that used in the Pirquet test. It has been used as a means of differentiation between cases of arthritis due to tuberculosis and to other bacteria. The conclusions of W. Loewenstein and A. Strasser are as follows:

1. The cutaneous tests with Ponndorf's cutaneous vaccine B, which is alleged to serve for the differentiation of the infectious from noninfectious rheumatic diseases, is apparently based only on the allergy to tuberculin.

2. A cutaneous test which is based on allergic phenomena, and which is supposed to serve for the differential diagnosis of rheumatic diseases with Ponndorf's cutaneous vaccine B, does not constitute unequivocal proof.

3. According to their observations, tests with different bacteria and bacterial mixtures, so far as they do not contain tuberculin, are also unsuitable for the differential diagnosis, since they do not produce any reaction.

According to E. Freund, Ponndorf vaccine must fail in those cases of progressive joint diseases which most frequently lead to invalidism. If results are obtained here, they are only temporary. On the other hand, it seems that chronic relapses of muscular rheumatism, polyneuralgias and mild cases of primary chronic polyarthritis react favorably. In arthritis deformans, symptomatic improvement is possible. The surprisingly good results of Paul could not be obtained by other Viennese workers. Physical methods, orthopedics, mechanical therapy and treat-

ment by baths remain the most valuable means against chronic rheumatic diseases.

G. Paul states that the dosage of Ponndorf vaccine should be strictly individualized and should aim at producing a strong local inoculation and focal reaction with as mild general reactions as possible. The scarification should be performed very delicately on a reduced area and without drawing blood. A negative local reaction (= local vaccination reaction) is prognostically unfavorable. The curative result is prejudiced if the stimulus threshold (degree of tolerance) is exceeded. Subsequent (not simultaneous) treatment with baths and physical therapy is advisable. Paul considers the cutaneous incorporation of proteins for therapeutic purposes to be one of the greatest achievements of practical therapeutics during the last decade.

MENOPAUSE

To the Editor:—1. What is the latest figure for the average age for the beginning of the menopause? 2. Does bearing of children cause any variation of average age as compared with nonbearing? 3. Does an early age at the beginning of menstruation have any effect on the age at the menopause? Please omit name.

M.D., Ohio.

ANSWER.—1. The average age for the beginning of the menopause in the temperate climate is about 47 years. However, there is an enormous variation in the ages at which the symptoms of the climacterium may arise. Cases are known in which the change of life occurred as early as 27 years of age and as late as 59 years. Generally speaking, in the United States the menopause occurs between 45 and 50 years of age in 50 per cent of women, between 40 and 45 years in 25 per cent, between 35 and 40 years in 12.5 per cent and between 50 and 55 years in 12.5 per cent.

2. Childbearing, especially if it occurs frequently in the life of a woman, seems to be associated with the late onset of the menopause. Contrariwise, the change of life generally occurs early in unmarried women.

3. In most instances there is a definite association between the onset of puberty and the time of appearance of the menopause. In general it may be said that the earlier the menstrual function begins the longer it will continue. Hence girls who have an early puberty will have a long potential reproductive career and will have a late menopause. Gallant (*New York M. J.* **91**:1282, 1910) published a chart of approximate ages as to when the menopause should appear, based on the age of onset of puberty. The table is as follows and is for healthy women only:

Year in Which Menstruation Appears	Menopause Should Occur
10	Between 50 and 52
11	Between 48 and 50
12	Between 46 and 48
13	Between 44 and 46
14	Between 42 and 44
15	Between 40 and 42
16	Between 38 and 40
17	Between 36 and 38
18	Between 34 and 36
19	Between 32 and 34
20	Between 30 and 32

DRAINAGE OF EMPYEMA

To the Editor:—I have in a hospital a boy, aged 7 years, on whom was performed a closed thoracotomy about eight weeks ago. At present, draining is profuse and the temperature ranges between 99 and 103, the latter point being reached usually at 4 or 6 p. m. There were times when he would have a normal temperature for about three days, at which time there would be little drainage. Then suddenly the septic temperature would manifest itself. A culture of pus from the operation yielded streptococci. This empyema is a complication of pneumonia of the right lower lobe. The general condition is good and examination does not reveal a pathologic condition. Would bacteriophage help any in shortening the period of convalescence? If it would, please give details concerning its administration. Kindly omit name.

M.D., New York.

ANSWER.—A fundamental principle in the treatment of empyema is adequate drainage, continued until the empyema cavity is obliterated. Such adequate drainage can be secured by the so-called open operation, involving rib resection, when the pus drains out by gravity, or by the closed thoracotomy; but if this method is used, the pus must be aspirated away and the cavity irrigated often enough to keep the cavity empty of pus. This means, usually, thorough irrigation every two hours during the day. If there is no evidence of bronchial fistula when saline solution is used for irrigation, surgical solution of chlorinated soda is to be recommended for the irrigating solution.

Children are apt to have a little fever during the course of this closed method of treatment, but the cavity usually obliterates rapidly, and in other respects they show progressive improvement. No type of treatment of the infection inside of the undrained or incompletely drained cavity will bring about a cure. With complete drainage, bacteriophage may be of value but is not necessary.

IMMUNITY IN DIPHTHERIA

To the Editor:—Will you please furnish me the following information: What degree of immunity is conferred by one attack of diphtheria? Would you deem it advisable to give diphtheria toxoid or toxin-antitoxin to a patient who had diphtheria in March, 1932? If this communication is published, please omit name.

M.D., Mississippi.

ANSWER.—In every group of individuals who have never had recognized diphtheria, a varying proportion is immune as determined by the Schick test. This may in part be due to inheritance, but it is thought that it is usually due to acquired immunity following a mild diphtheria which was not recognized at the time and was recovered from without antitoxin being given. In favor of this is the fact that the proportion of immune persons increases with age, that it is greater in urban than in rural regions, and that it is highest in the densely populated districts of cities. It seems that diphtheria untreated with antitoxin is usually followed by immunity. When persons with diphtheria are treated with antitoxin, the natural immunizing process is interfered with and after recovery they are often not immune but are Schick positive. A Schick test made after recovery will determine whether immunity has developed. In such a person with a positive Schick test, diphtheria toxoid may be given as under any other circumstances.

IODINE IN TOXIC ADENOMA

To the Editor:—Is it a good policy to give Lugol's solution in toxic adenoma for a long time if it seems to abate the severity of the symptoms? Will the patient feel worse when it is discontinued? Please omit name and address.

M.D., Iowa.

ANSWER.—The administration of compound solution of iodine (Lugol's solution) or of a salt of iodine, such as sodium iodide, is frequently followed by marked reduction or complete disappearance of symptoms of hyperthyroidism. The degree of improvement varies greatly. In favorable cases, especially in mild cases in which surgical operation is scarcely to be considered, the patient may be kept free of symptoms by small doses or by intermittent treatment and after weeks or months may then sometimes remain free of symptoms without further treatment. At the other end of the scale of severity are the more severe intoxications in which the evident overstrain on the heart or severe nervous symptoms call for radical treatment, first with rest in bed and later with surgical removal of a considerable portion of the thyroid.

The favorable effect of iodine even in these severe cases is often striking. When there is no contraindication to operation, however, it is usually best to operate on such patients as soon as rest and iodine have brought about sufficient improvement to make operation safe. Obviously it would not be good policy unnecessarily to prolong treatment with iodine of patients whose symptoms are not completely relieved and who clearly are subjects for operation. It sometimes happens that patients in whom surgical treatment seems indicated refuse operation and so must be continued on other treatment. When iodine is stopped in such patients, they frequently feel worse when it is discontinued, but apparently no worse than might be anticipated from the return of symptoms previously held in check by the iodine. In arriving at a judgment in such a case, allowance must be made of course for progressive damage to the heart from long continued and uncontrolled hyperthyroidism.

EFFECTS OF CREOSOTE ON EYES

To the Editor:—I have a patient who claims loss of sight of his right eye and failing vision of the left eye from the handling of creosote railroad ties. What effect could this have on his eyes, hands and face? What is the composition, other than creosote, used by the railroads in these ties? Are there any cases on record of this nature? The patient says that he wears canvas gloves while working on a pile of ties, arranging them in order, and that the creosote is dripping from the ties and the fumes thereby affecting his face. His right eye was removed about January, 1932, and his left eye has numerous corneal scars.

CARL HOBART, M.D., St. Louis.

ANSWER.—Dermatitis, conjunctivitis and skin ulceration arising in the handling of creosoted ties are widely recognized as occupational disorders. Impregnation plants are the sources of the greater number of cases. In summer months, many complaints arise from track workers and others handling ties or telephone poles.

The term "creosote," as commercially applied, embraces a diversity of chemical substances, as indicated in the following, from a U. S. Department of Agriculture bulletin:

The term "creosote" or "creosote oil" has such a wide variation in meaning that all statistics include, in all probability, not only the product obtained from the distillation of coal tar but also mixtures of the distillates with crude, refined or filtered tar, mixtures of water-gas tar distillates, and mixtures of coal tar distillates and water-gas tar.

In addition to creosote, the ties may be treated with disinfectants, fungicides or fire inhibiters. The best known is zinc chloride. As an index of the prevalence of creosote cases, fifty-six occurring in Ohio may be cited. These were described in the report of the state department of health for 1927:

Practically all were railroad section hands handling creosoted ties.

It is not known that wood-preserving materials have any specific, direful action on the eyes, such as is true of wood alcohol. Conjunctivitis, iritis or corneal ulceration may develop from contact, but damage sufficient to require the enucleation of the eye necessitates the occurrence of unusual complications.

INTERSTITIAL KERATITIS

To the Editor:—I have a patient, aged 17 years, well developed and able to take an adult size dose of treatment. She has an interstitial keratitis with a Kolmer Wassermann reaction of very strongly positive 4+ and a Kahn test of moderately positive 3+. Would you please tell me which form of arsenic is best in treatment of this condition and outline a course of treatment? Please omit name.

M.D., Ontario.

ANSWER.—In this type of case, arsenic is of more value than the old inunction cures, merely because the systemic toxemia can be brought under control more rapidly. From the standpoint of the eye there is little difference in the therapeutic results from the different forms of arsenic, and in the majority of hands neoarsphenamine has been found satisfactory. The majority of clinicians agree that it is best to start with a small dose, say 0.1 Gm., repeating the injections every third or fourth day and increasing the dosage up to from 0.75 to 1.0 Gm. During this time, iodides should be used in moderate size doses. As soon as the limit of arsenical toleration has been reached, mercury should be administered, either intramuscularly or by inunction, to a point short of saturation. The arsenicals should be repeated and alternated with mercury for a period of from three to five months, the dosage being gradually decreased and the time between treatments lengthened according to the condition of the eye and the reaction of the blood. Of course, it is needless to say that local ocular treatment must be continued until the eye is perfectly quiet.

PHOTOPHOBIA

To the Editor:—A woman physician, now 60 years of age, has suffered from photophobia since she was 9 or 10 years of age. This has increased until now it almost wholly incapacitates her. For some years the darkest tint lenses with her refractive correction have given her moderate relief. No physical or pathologic cause has been found in her case. Any suggestions for relief would be appreciated. Please omit name.

M.D., Connecticut.

ANSWER.—It is, of course, impossible to say without examination what the cause of the photophobia is, as it might be due to a pathologic condition of the cornea or to retinal hypersensitivity or to a neurotic condition. In some cases relief is obtained by the use of 1 per cent ethylhydrocupreine instilled into the conjunctival sac every four hours.

CONTRARY THERAPY OF TUBERCULOSIS AND SYPHILIS

To the Editor:—I was much interested in the article by Petersen and Hecht, in THE JOURNAL, concerning the contrary therapeusis of syphilis and tuberculosis. I have been wondering for some time how much, if any, harm is done to old tuberculous processes by treating a coexisting syphilis. I believe that iodides are definitely contraindicated. What is your opinion of the effect of bismuth, arsenic and mercury on healed tuberculosis? Have you any references? Please omit name and address.

M.D., California.

ANSWER.—Whether or not harm is done to old tuberculous processes will be purely an individual problem, which probably cannot always be answered. In some cases the tuberculous scars will offer great resistance. In other instances, activation of quiescent lesions may occur. Whether or not the bismuth or arsenic or mercury preparations will have effect will depend on the amount of medication and the biologic stimulation that may result from their use. Small doses of these substances act, in general, in an anabolic direction. Larger doses may produce distinct stimulation and catabolic effects. The problem largely involves clinical judgment and careful observation of the patient.

INFECTIOUSNESS OF SYPHILIS

To the Editor:—How long is a patient infectious who has a four plus Wassermann and stigmas of a secondary syphilis, the contact not being sexual? The patient is under intensive treatment. Please do not print name.

M.D., Illinois.

ANSWER.—Infectiousness ceases at most within a day or two after treatment with one of the arsphenamines has begun. It may return during a considerable lapse in treatment but is rarely seen during treatment that is at all adequate.

DEVELOPMENT OF PERMANENT TEETH

To the Editor:—A child of 6 has erupted the two permanent lower medial incisor teeth behind the deciduous teeth. Should the deciduous teeth be extracted and, if this is done, will the permanent teeth take their proper position in the jaw or must they be brought forward later by orthodontia? Kindly omit name.

M.D., California.

ANSWER.—The deciduous teeth should be extracted. The permanent incisors will usually assume the normal position if function is normal. Lower incisors normally erupt slightly nearer the tongue than do the temporary incisors. As a rule, however, roots of the temporary teeth are absorbed as the permanent teeth erupt and the crowns are shed just prior to the appearance of the incisal edge of the permanent tooth. If the temporary tooth is too long retained, there is danger of a malocclusion developing which will not correct itself. Even though the temporary teeth are extracted there is, of course, always the possibility of constriction of the lower arch from causes that are distinct etiologic factors not related to this particular condition.

HIGH BLOOD PRESSURE

To the Editor:—In Queries and Minor Notes (THE JOURNAL, August 6, p. 497) an Iowa physician cites the case of a man aged 79, "whose heart and blood are otherwise normal," and who "has a blood pressure of 208 systolic and 86 diastolic." The physician then asks: "Does this pressure come from worry? . . . The arteries are hard, with evidence of arteriosclerosis. . . . What would you advise for the blood pressure?"

The answer says: "There seems to be little indication for any kind of treatment of this patient," an opinion which reflects the belief of many good internists, but one to which I would take exception. Even taking into consideration all the facts, the age of the patient, the condition of the arteries and the low diastolic pressure, a systolic pressure of this height should not be considered normal, granting the use of the word "normal" in the widest possible latitude. If the condition is abnormal, it should be watched and treated. A few simple procedures will at least tend toward correction, and this improvement will usually be followed by increased comfort and efficiency, both mental and physical, and possible delay of cerebral or cardiac accident.

I assume that the writer of the query refers to the morphologic examination in stating that the blood is normal, as it is very rare that the pattern of the plasma chemistry in a person of 79 years on a medium diet having arteriosclerosis is framed within the widest zones of normality. In this instance it is suggested that a blood sugar examination be done three hours after breakfast, and not on the starving stomach. By this procedure, the meal acts as a rough dextrose tolerance test, and should the pancreas be limited in its capacity, the limitation will be revealed more readily. Should there be a tendency toward mild hyperglycemia, as is found in many arteriosclerotic patients, it is better to use 5 units of insulin twice or three times daily rather than cut off the use of sugar from the diet. It is not impossible that a condition of "concealed diabetes" might be uncovered, i. e., hyperglycemia without glycosuria, in which event antidiabetic treatment is surely indicated.

Especially in view of the complaint "frequent micturition," the sodium chloride clearance test should be done, better known as the determination of the Ambard kidney threshold for salt. In case the facilities for this work are not available, it may be assumed that the Ambard threshold is increased, and the patient treated accordingly. The patient need not be unnecessarily afflicted with all the difficult details of the rigid salt-free diet, but if all obvious salt intake is interdicted, perhaps in the course of a few weeks it will be found that the systolic pressure is softened considerably, the memory for names and dates will improve, concentration powers will be augmented, and the urge to urinate frequently or in the early morning hours will subside.

As the sodium ion in excess concentration appears to be the cause operating in such conditions, the use of sodium bicarbonate also should be interdicted. In fact, it would not be surprising if a systolic pressure of this type was largely due to the use of sodium bicarbonate as an antacid. The proper care of septic teeth, tonsils, and so on, need not be emphasized.

Even in advanced age (especially in the absence of history indicating pulmonary tuberculosis of long standing), heavy arterial thickening suggests the possibility of a syphilitic background, and small doses of potassium iodide are indicated. This will assist in restoring the normal mineral base balance of the plasma. For reasons already given, sodium iodide should not be used.

Finally, "does pressure come from worry?" Worry and mental strain are rapidly fading out of the picture so far as I am concerned as causes of hypertension. I am hoping to live long enough to see this association dropped into the same limbo that holds the formerly supposed relationship between head injury and diabetes mellitus.

HARRIS A. HOUGHTON, M.D., New York.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written.* Nineteen cities in the United States and Canada, Oct. 22. *General, oral and clinical.* Los Angeles, Dec. 7. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

ARKANSAS: *Basic Science.* Little Rock, Nov. 7. Sec., Mr. Louis E. Gebauer, 1002 Donaghey Bldg., Little Rock. *Regular.* Little Rock, Nov. 8-9. Sec., Dr. Sam J. Allbright, Searcy. *Eclectic.* Little Rock, Nov. 8. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith. *Homeopathic.* Little Rock, Nov. 8. Sec., Dr. Allison A. Pringle, Eureka Springs.

CALIFORNIA: *Sacramento,* Oct. 17-20. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: Hartford, Nov. 8-9. Sec., Dr. Thomas P. Murdock, 147 West Main St., Meriden. *Homeopathic.* New Haven, Nov. 8. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

FLORIDA: Jacksonville, Nov. 14-15. Sec., Dr. William M. Rowlett, 706 Franklin St., Tampa.

ILLINOIS: Chicago, Oct. 18-20. Supt. of Registration, Mr. Paul B. Johnson, Springfield.

MAINE: Portland, Nov. 8-9. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, Nov. 8-10. Sec., Dr. Stephen Rushmore, 144 State House, Boston.

MINNESOTA: Minneapolis, Oct. 18-20. Sec., Dr. E. J. Engberg, 524 Lowry Medical Arts Bldg., St. Paul.

NEVADA: Carson City, Nov. 7-9. Sec., Dr. Edward E. Hamer, Carson City.

NEW JERSEY: Trenton, Oct. 18-19. Sec., Dr. James J. McGuire, 1101 Trenton Trust Bldg., Trenton.

SOUTH CAROLINA: Columbia, Nov. 8. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

WEST VIRGINIA: Morgantown, Nov. 16-18. Sec., Dr. W. T. Henshaw, Charleston.

North Dakota July Report

Dr. G. M. Williamson, secretary, North Dakota State Board of Medical examiners, reports the oral, written and practical examination held in Grand Forks, July 5-8, 1932. The examination covered 13 subjects and included 100 questions. An average of 75 per cent was required to pass. Fifteen candidates were examined, all of whom passed. Two physicians were licensed by reciprocity with other states and one physician was licensed by endorsement. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Emory University School of Medicine		(1929)	79.1
Northwestern University Medical School		(1919) 81.4, (1932)	81, 84.1
Rush Medical College		(1931) 92, (1932)	82.7, 84.5
University of Illinois College of Medicine		(1932)	80.5, 80.5
University of Minnesota Medical School		(1931)	79.4, 87.2, (1932) 77.3
University of Nebraska College of Med		(1929) 80.5, (1931)	84.7

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1928)	Illinois
University of Alberta Faculty of Medicine		(1925)	Michigan

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Minnesota Medical School		(1931)	N. B. M. Ex.

Missouri June Report

Dr. James Stewart, secretary, Missouri State Board of Health, reports the written examination held in St. Louis, June 14-16, 1932. The examination covered 14 subjects and included 86 questions. An average of 75 per cent was required to pass. One hundred and fifty-six candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
University of Arkansas School of Medicine		(1931) 84, (1932)	87.1
Howard University College of Medicine		(1931)	81.2, 82.8, 84.8, 86.3, 86.6
Northwestern University Medical School		(1932)	81.3, 86.5, 87.6
Rush Medical College		(1931)	84.3
University of Illinois College of Medicine		(1931)	83.4, (1932) 82.2, 85.7, 86.1
State University of Iowa College of Medicine		(1929)	89.5
University of Kansas School of Medicine		(1929)	85.9, (1931) 84.4, 87.1, (1932) 81.7, 87.5, 87.8
University of Louisville School of Medicine		(1931)	86.6
Tulane University of Louisiana School of Medicine		(1931)	88.1
University of Minnesota Medical School		(1932)	85.8
St. Louis University School of Medicine		(1931)	81.8, 82.9, 83.5, 83.7, 85.1, 85.1, 85.9, (1932) 77.8, 81.9, 81.9, 82.7, 83, 83, 83.2, 83.4, 83.5, 83.6, 83.6, 83.9, 84, 84.2, 84.2, 84.2, 84.3, 84.3, 84.3, 84.3, 84.3, 84.4, 84.5, 84.5, 84.6, 84.6, 84.7, 84.7, 84.8, 85, 85.1, 85.3, 85.4, 85.4, 85.5, 85.5, 85.8, 85.8, 86, 86.3, 86.3, 86.5, 86.6, 86.6, 87.1, 87.4, 87.5, 87.9, 88, 88.1, 88.3, 88.5
Washington University School of Medicine		(1930)	85.8, 86.4, (1931) 81.9, 84.3, 84.8, 85.7, 86.3, 87.1, 89, (1932) 81.1, 83.1, 83.5, 83.6, 83.6, 83.7, 83.8, 83.9, 84, 84.2, 84.3, 84.4, 84.5, 84.6, 84.6, 84.6, 84.7, 84.7, 84.7, 84.9, 84.9, 84.9, 85, 85, 85, 85.1, 85.1, 85.1, 85.2, 85.2, 85.3, 85.3, 85.5, 85.5, 85.8, 85.8, 85.9, 86.1, 86.1, 86.2, 86.3, 86.4, 86.6, 86.8, 86.8, 86.8, 87.1, 87.4, 87.6, 87.8, 88, 88, 88.4, 88.6, 88.7
University of Oklahoma School of Medicine		(1931)	83.4
University of Pennsylvania School of Medicine		(1931)	86.1
University of Texas School of Medicine		(1931)	90.6
University of Wisconsin Medical School		(1929)	89, (1931) 82, 84.3, 85.4, 86.9

Alaska March Report

Dr. Harry C. DeVighne, secretary, Alaska Territorial Board of Medical Examiners, reports the written and practical examination held in Juneau, March 1, 1932. The examination covered 10 subjects and included 50 questions. An average of 75 per cent was required to pass. Two candidates were examined, both of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Indiana University School of Medicine		(1930)	79
Jefferson Medical College of Philadelphia		(1931)	85

Book Notices

Medical Jurisprudence. By Alfred W. Herzog, Ph.B., A.M., M.D., Honorary Academician of the International Academy of Letters and Sciences. Cloth. Price, $15. Pp. 1051. Indianapolis: Bobbs-Merrill Company, 1931.

Medical Jurisprudence. By Carl Scheffel, Ph.B., M.D., LL.B. Cloth. Price, $2.50. Pp. 313. Philadelphia: P. Blakiston's Son & Company, Inc., 1931.

Courts and Doctors. By Lloyd Paul Stryker. Cloth. Price, $2. Pp. 236. New York: Macmillan Company, 1932.

The Insanity Plea. By Edward Huntington Williams, M.D. Introduction by August Vollmer, Chief of Police, Los Angeles, California. Cloth. Price, $2. Pp. 169. Baltimore: Williams & Wilkins Company, 1931.

Jurisprudence for Nurses: Legal Knowledge Bearing Upon Acts and Relationships Involved in the Practice of Nursing. By Carl Scheffel, Ph.B., M.D., LL.B. Cloth. Price, $2. Pp. 166. New York: Lakeside Publishing Company, 1931.

No matter what the chosen field of a physician's professional activities may be, his every privilege, right and duty is determined by law. A knowledge of the law governing such matters is therefore an essential part of a physician's professional equipment. THE JOURNAL brings such knowledge to its readers through the publication weekly of abstracts of court decisions of medicolegal interest, so that a reader may learn from the experiences of others and not wait until knowledge comes to him through bitter experiences of his own. New books in this field, however, written by American authors and based on American law and practice, have seldom appeared during recent years. Now there is evidence of an awakening interest on the part of authors and publishers, based presumably on increased professional and popular interest, as is shown by the recent publication of these five books. Although they differ widely in scope and purpose, the general aim of all is to diffuse a knowledge of legal medicine, medical jurisprudence or forensic medicine.

Herzog's Medical Jurisprudence is a rather imposing volume, fashioned after the pattern of a law book. The text, however, covers scarcely more than 750 pages, 6½ by 10 inches. The remainder is made up of a table of cases cited, 89 pages; scattering footnotes, almost altogether citations to court decisions, about 180 pages; an index, about 111 pages, and a bibliography of medical books and books on criminology covering scarcely more than 3 pages. There are no illustrations. Herzog has endeavored to present the data necessary to enable a lawyer to discover the principles that apply in any case involving medical problems and to find the laws and decisions governing the case. He has endeavored to inform physicians of their rights and duties and of what the law requires of them. Numerous citations to decided cases will enable the lawyer to trace the author's statements to sources of primary legal authority, so as to determine the weight to be given to such statements and to make a more exhaustive study of any particular matter than is possible even in a book as large as this one. To the reader who is not legally trained, the book, through its elaborate index, affords access to information concerning not only such matters of medicolegal interest as are

ordinarily discussed in books of this character but also many matters not ordinarily so discussed. Among matters of the former class are the signs of death and conditions after death, identification, asphyxia, wounds and other injuries, mental disorders, the jurisprudence of sex relations, and poisoning. Among matters not discussed in similar books are legal and illegal practitioners, the liability of hospitals, liability for mental anguish and for fright, the third degree, the pneumocardiosphygmometer, workmen's compensation acts, inebriety and drug addiction, sterilization and contraception, and marriage. Possibly the author has in places spread his efforts too thin in undertaking to cover so much matter, even within the compass of a book as large as this one. On the whole, however, the book will form a useful addition to the working libraries of physicians and lawyers specially interested in the legal aspects of the science and art of medicine and in the application of the science and art of medicine to the purposes of law.

Scheffel's Medical Jurisprudence is a much less pretentious book than Herzog's. Although the titles of the two books are identical, their contents are materially different. Herzog covers not only law as applied to medicine but also medicine as applied to law. Scheffel covers only law as applied to medicine. The fact that these two books, bearing the same title, differ so widely in their contents emphasizes the importance of reserving the term "medical jurisprudence" to cover law as applied to the science and art of medicine and reserving the term "legal medicine" to cover the application of the science and art of medicine to the purposes of law. The occasionally used term "forensic medicine" might be used as a synonym for "legal medicine" or, even better, it might be discarded. Suggestions that these terms be so differentiated and used have not, however, met with a favorable response. Scheffel has undertaken to give an exposition of law as it applies to medicine, in a volume of 306 printed pages, 5½ by 8½ inches. The result has been a volume convenient in size and moderate in price. These advantages have been obtained, however, at the expense of completeness and accuracy; the author has been compelled to omit much and to generalize to an extent that may mislead unsuspecting readers. The subject matter is discussed under seven chapter headings: the contractual relations of physicians, how the law of agency involves physicians, physicians and torts, witnesses and evidence, property interests of physicians, physicians and criminal responsibility, and physicians as law makers. With so much left unsaid in the field of established facts and principles, that the author might have advantageously said, it is difficult to understand why he has devoted 22 pages to an expression of his views concerning medical legislation, under the somewhat misleading chapter heading of physicians as law makers. His statement that the information contained in his book has not heretofore been conveniently available to the physician in easy reference form is hardly in accordance with fact, if his unimportant chapter on physicians as law makers is excepted. Ordronaux, A. N. Taylor, Culbertson, Brothers, Mitchell and others have covered much the same field. Scheffel's book affords interesting reading and is a fair general guide to professional conduct. The reader, however, should not undertake to apply too confidently to his own case the legal principles and rules laid down by the author. The generality of his statements and important variations in federal and state laws forbid.

Courts and Doctors, by Stryker, is a much less pretentious book than either of the foregoing. Mr. Stryker was for many years the general counsel for the Medical Society of the State of New York. The executive committee of the society requested him to put into book form the results of his experience and research into the law relating to malpractice, and this book is the result, although the author has not limited himself to a discussion of malpractice alone. The text covers about 190 pages, 5 by 7½ inches, supplemented by an introduction, 12 pages, and a conclusion, 7 pages. The list of cases cited, of references and of authorities and abbreviations used, covering 23 pages, add to the value of the book, since they enable the reader to inform himself on any matter of particular interest more extensively than it has been possible for the author to inform him in so small a volume. The book is a readable little volume, which, it must be admitted, has in places a somewhat local New York flavor. Any physician, however, can read it with advantage.

The Insanity Plea, by Williams, differs from the three books already discussed in that it seems to be designed for the popular reader and for the physician and the lawyer who are only casually interested in forensic psychiatry, rather than for the serious student. It is a narrative of some of the author's experiences and observations in the field of psychiatry as applied to the purposes of law, not a serious study nor a textbook nor a reference book. It covers 169 pages, 5½ by 7½ inches. The story of the murder of Fred Oesterreich in Los Angeles, in 1922, however, covers thirty-eight pages, nearly one fourth of the book, a space that certainly seems out of proportion to its psychiatric and legal implications, even though the story itself is interesting. The subject matter and possibly the size of this volume are such that the publishers apparently did not feel it worth while to provide it with an index.

Jurisprudence for Nurses, by Scheffel, occupies a field of its own. The text covers 120 pages, 6 by 9 inches. The author endeavors to interpret for nurses the law covering the acts and relationships involved in the practice of nursing. The subject matter is discussed under several headings: the legal status of nurses, the legal obligations of nurses, nurses and contracts, nurses and wills, the nurse as a witness, and the criminal responsibility of nurses. About thirty pages are devoted to questions and to problems for nurses to solve, and to answers to such questions and problems. The author has apparently felt it necessary to generalize extensively, and he has done so to an extent that materially lessens the value of his book. Some of his statements and advice are hardly in accordance with fact and good practice. Such for instance is his advice that a nurse is in duty bound, for the protection of her patient, not to carry out a physician's order if *in her judgment* the order is not merely of no benefit, but dangerous, to the patient. A nurse will probably soon find herself in conflict with the court who relies on the author's advice that, on the witness stand, the more nearly a question, even on cross-examination, puts the reply into her mouth as it were, the greater is her right to refuse to answer it. A nurse who carries with her the impression, which this book clearly gives, that she is not civilly liable for the consequences of her own ignorance, unskilfulness or neglect, if she acts as the agent for a physician or a hospital, may find herself sadly mistaken if she has sufficient property to make it worth while for any one to sue her on account of her default. It is impossible to understand why in a book of this character and size the author should devote twenty pages to instructing nurses regarding their duties relating to wills, including even instruction as to the drafting and execution of wills, with a copy of a supposedly model will to be followed as a pattern. His instruction with respect to the validity of oral wills, referred to by the author as "non-punctive" wills—by which he probably means nuncupative wills—is dangerous, for, in most states, wills of that character are valid only under the most unusual conditions, concerning which Scheffel says nothing. Throughout the book there are too many implications that a nurse is constantly in danger of being imposed on in some way or unnecessarily involved in legal difficulties, by physicians. This may be illustrated by one of the problems submitted for nurses to solve, asking them concerning their criminal liability if called on by a staff surgeon in a hospital to prepare the operating room for an abortion on a young girl whom he brings with him into the hospital after midnight, when the surgeon compels the nurse, at the point of a revolver, to carry out his orders, to assist at the operation, and to help dispose of the dead body. Such a melodramatic problem may add zest to the nurse's studies, but it is hardly calculated to give her a proper conception of a nurse's life or a doctor's habits. It is a pity that a book that is apparently the initial book in the field of jurisprudence for nurses should not have been better organized before publication.

Dermatologie. Par A. Sézary, professeur agrégé à la Faculté de médecine de Paris. Paper. Price, 30 francs. Pp. 237, with 84 illustrations. Paris: Masson & Cie, 1932.

This is one of a series of monographic introductions to the various phases of medicine. The distinct purpose of the author is to present in a simplified manner the principles of dermatologic examinations, so that beginners especially can rapidly analyze and identify the various skin lesions. The material has been organized and presented in a masterly manner. Begin-

ning with elemental dermatologic anatomy, the author discusses in succession history taking and symptoms, the examination proper, the classification and description of the elemental lesion, and cutaneous tumors. Then follows an excellent chapter on methods to be used in analyzing the character of a dermatitis. Next comes an introduction to clinical diagnosis. The problem is to search for the causative agents, establish the pathology, and study the individual's constitution, his environment and his knowledge of hygiene. The laboratory methods in general use are emphasized. The author takes the view that anesthesia is not indispensable in biopsies. The remainder of the book is devoted to dermatologic classification: first the diseases caused by mechanical, physical or chemical agents; then those caused by animal parasites and those of bacterial origin, and diseases resulting from disorders of the digestive, circulatory, nervous, endocrine, hematopoietic and renal systems. A chapter on allergic diseases and those of unknown origin complete this part of the book. A discussion of the diseases of the appendages of the skin ends a book which can be highly recommended to the student, to the general practitioner, and to the specialist who wishes to improve his grasp of the subject. The illustrations are excellent.

Physical Therapeutic Technic. By Frank Butler Granger, A.B., M.D. Second edition, revised by William D. McFee, M.D., Visiting Physician, Department of Physical Therapy, Boston City Hospital. Cloth. Price, $6.50. Pp. 436, with 135 illustrations. Philadelphia & London: W. B. Saunders Company, 1932.

The posthumous work of Granger left a document to the medical profession considered as the most advanced expression on the subject of physical therapy. Progress in this discipline has since then amply justified his conservative attitude in regard to the basic facts as presented in his book. Written for the beginner, it gave promise of becoming the classic contribution in this field. It embodied such attributes as simplicity of style, conciseness of thought and a facility of clear exposition that made difficult subjects easy to comprehend. The disturbance of a posthumous work extraordinarily well done could have been inspired only by the pressing need of bringing down to date the new and vital contributions to the subject. The revised edition, therefore, stands out in sharp contrast because it has fallen short of such an objective and this, least of all, because of the handicap that sentiment and the memory of Granger's accomplishments have left behind.

Appreciating these difficulties, the editor prefaces his theme by stating that what is to follow is mainly the record of personal experience obtained in war and government work, coupled with a large consulting practice. Unfortunately, the succeeding pages do not indicate his complete orientation with either the accepted facts or the vital changes that are now taking place in this field. For the sake of historical conciseness it should be pointed out that d'Arsonval's first publications in high frequency studies dated back at least six years prior to that stated by the editor: namely, April 20, 1892, rather than 1898. Evidence is also at hand that contradicts the editor's assumption that Nagelschmidt was the first to demonstrate, in 1907, a "heating through" of tissues. It was von Zeynek, in 1898, while working in Professor Nernst's laboratory, who first pointed out the "heating through" properties of the high frequency current. D'Arsonval, himself, called attention to the disagreeable heat sensation (*une sensation de chaleur désagréable*) in 1897. Questionable references are found in the book, the most notable of which is that concerning the work of Joule. It is here felt that poor editorial discrimination was used in quoting the classic laws of Joule through the medium of a second person, one whose authority is not only completely sublimated by the reputation of the first but whose writings have often elicited justifiable criticism. It does not add to the prestige of Joule or to the book to have such names coupled. Editorial laxity is reflected in scattered typographic errors.

In the light of Granger's positive stand against the exploitation of unproved agencies, it must be considered rather indelicate to his memory to find in these pages propaganda favorable to one such agency, one recommended for the questionable procedure of tonsil sterilization. In the category of errors of omission may briefly be mentioned failure to include discussions of the new trend in the field of ultra-high frequency current, the uses of diathermy for induction of general hyperpyrexia, and a review of the advances in phototherapy. In contrast to what has been said, it should be pointed out that the main body of the work still contains the facile scholarship that was Granger's, and hence possesses valuable deductions and practical guidance of interest to all beginners in physical therapy practice.

Fractures. By Meurice Sinclair, C.M.G., M.B., B.Ch., Specialist in Fractures and Orthopaedic Surgery to St. James's Hospital and to Paddington Hospital, London. With an introduction by Sir Robert Jones, Bt., K.B.E., C.B. Modern Surgical Monographs. Edited by G. Gordon-Taylor, O.B.E., M.A., F.R.C.S. Cloth. Price, 24/–. Pp. 550, with 337 illustrations. London: Constable & Company, Ltd., 1931.

This book was written by a man who distinguished himself during the war as one who handled fractures in a conservative manner and whose results stood out as one of the accomplishments of the surgical service during the war. Those Americans who served with the British army were impressed with the quality of Sinclair's work. He presents a description of the technic and principles which he evolved and practiced during the last sixteen years, including his vast experience during the Great War. From an economic and utilitarian point of view the perfect restoration of function in a limb of a young working man is as fine a surgical achievement as a brilliant abdominal operation. It may seem to the reader that in essence this book is a glorification of the Thomas splint, for which the author makes no apology. He states that no special surgical skill is needed in its use. Unremitting patience and attention to detail coupled with an elementary knowledge of anatomy and mechanics will usually suffice. The book is divided into two sections, the first dealing with the general principles of causation and treatment, the second with detailed treatment of individual fractures. Sir Robert Jones states in his introduction that Sinclair's services at the front were most commendable. His fracture hospital was the last word in military surgery at that date. He cured his patients with no avoidable deformity and a minimum of shortening. Sir Robert says that he can commend this book not only to practitioners generally but to hospital staffs who have facilities for carrying out the suggestions offered.

Public Health Organization: Report of the Committee on Public Health Organization. E. L. Bishop, M.D., Chairman. White House Conference on Child Health and Protection. Cloth. Price, $3. Pp. 345. New York: Century Company, 1932.

The School Health Program. Report of the Committee on the School Child. Thomas D. Wood, M.D., Chairman. White House Conference on Child Health and Protection. Cloth. Price, $2.75. Pp. 400. New York & London: Century Company, 1932.

Obstetric Education: Report of the Subcommittee on Obstetric Teaching and Education. Fred Lyman Adair, M.D., Chairman. White House Conference on Child Health and Protection. Cloth. Price, $3. Pp. 302. New York & London: Century Company, 1932.

The first volume in this group is a report of the committee headed by Dr. E. L. Bishop. It includes a consideration of the evolution and present status of public health work, studies of rural, city, state, federal and unofficial administrations and organizations, a section on the training of public health personnel and on child health work, and a good section on the health aspects of food control. Of especial interest to physicians is the chapter on the relation of practitioners of medicine and dentistry to health programs. It is recognized that this cooperation is necessary in order to achieve the best results. It is felt that the federal, state and local health organizations should assume leadership in all educational health activities, that the medical and dental professions should cooperate, and that cooperation of the federal government with states for the protection of the public health should be conducted by the Public Health Service. The committee recommended legislation to authorize the transfer to the Public Health Service of all the health activities of the federal government and included in this the work of the Children's Bureau. Miss Grace Abbott presents a dissenting opinion against this recommendation. Dr. Olin West presents a dissenting opinion because of the conviction that the granting and allotment of federal subsidies to departments of state governments is violation of the fundamental principles of our system of government, and Dr. F. C. Warnshuis presents a dissenting opinion for the same reason.

The volume on "The School Health Program" is prepared under the direction of Dr. Thomas D. Wood. It provides a survey of public school activities, including medical service, dental service, nursing service and nutrition service. It con-

siders safety education for the home and school, summer vacations and legislation in this field. It is an adequate survey of existing conditions.

The volume on "Obstetric Education," prepared by Dr. Fred L. Adair, includes sections on undergraduate and graduate education and on the education of nurses, midwives and social workers. The book also includes important data concerning existing legislation, the requirements of obstetrics and gynecology in the class A medical schools, and many other important related subjects.

The Laboratory in Surgical Practice. By E. C. Dodds, M.V.O., M.D., Courtauld Professor of Biochemistry in the University of London, and Lionel E. H. Whitby, C.V.O., M.D., M.R.C.P., Bacteriologist to the Middlesex Hospital, Bland-Sutton Institute of Pathology. Modern Surgical Monographs. Edited by G. Gordon-Taylor, O.B.E., M.A., F.R.C.S. Cloth. Price, 8/6. Pp. 187, with 22 illustrations. London: Constable & Company, Ltd., 1931.

This monograph is limited to advice on the use of the laboratory in surgery from the author's own experience. Details of technic have been given in only a few simple cases. The general preoperative study of the patient as done in the laboratory is considered with regard to the blood, urine, feces, sputum and various types of bacteria. The laboratory work necessary in blood transfusion is well described. Use of vaccine therapy is favored in many conditions, although its limitations are indicated. The value of bacteriophage is held to be limited. Besredka's antivirus is said to be difficult to evaluate because of the lack of controls. A few especially important pathologic conditions associated with operations from the laboratory standpoint include diabetes, pregnancy, jaundice and thyroid disease. Important tests include those of renal function, blood estimation and the observations in genito-urinary infection. Various tests are of value to the surgeon in diseases of the gastro-intestinal tract, including the liver, gallbladder and pancreas. The proper methods for collecting and preserving specimens in the operating room are described. The book is brief and clearly written. It should prove an aid to the surgeon in gaining essential information and obtaining the proper laboratory studies.

Your Teeth and Their Care: A Simple Explanation of Dentistry, Dental Procedures, and the Relation of the Dentist to the Public. By Carl W. Adams, D.D.S. Cloth. Price, $1.25. Pp. 141, with 30 illustrations. St. Louis: C. V. Mosby Company, 1932.

This book has splendid possibilities which do not seem to be fully realized. The anatomic chapter does not seem sufficiently clear for the understanding of a layman; perhaps one reason is that there is a great deal of rather technical discussion of histology.

The author promulgates the theory of autointoxication as one of the causes of tooth disease, attributing autointoxication to "an accumulation of an excess of waste products which are normally thrown off through the stool, perspiration, respiration and urine." Needless to say, this theory of disease has been largely discredited. Under the same heading he mentions x-rays, light, electricity, atmospheric pressure, heat and cold. This may perhaps be merely poor organization of material, but to the lay reader it is likely to give an erroneous impression. His reference to certain hereditary conditions among other causes of disease of the teeth will lead the layman, whose ideas of heredity are hazy, to say the least, into mistaken conclusions. There is at least a serious difference of opinion concerning the author's statement that the organisms of Vincent's infection may occur in the mouth without producing the characteristic lesions, except perhaps for a short period before and after the presence of the lesions themselves.

The author's advice about the use of the tooth-brush and about mouth washes, tooth-pastes and periodic checking up is excellent.

There is hardly any excuse for a professional man making the statement that acidosis "may also occur in connection with a disease of the kidneys known as diabetes. . . ." Diabetes, of course, is not a disease of the kidneys.

While one may agree with the author that the choice of an anesthetic should be left to the dentist, one cannot agree that the patient should be expected to inform the dentist of tendencies toward excessive bleeding or heart or kidney involvement. These are matters for the consideration of the professional man and are his responsibility, not that of the patient.

It is unfortunate that the large amount of excellent material in this book cannot be given unreserved endorsement, but the layman cannot be expected to discriminate and to detect for himself the fallaciousness of such statements as have been pointed out.

Traité de physiologie, normale et pathologique. Publié sous la direction de G. H. Roger, professeur honoraire de physiologie à la Faculté de médecine de Paris, et Léon Binet, professeur de physiologie à la Faculté de médecine de Paris. Tome VI: Circulation. Par MM. J. Demoor, Ph. Fabre, H. Frédéricq, H. Hermann, P. Mathieu et H. de Waele. Boards. Price, 110 francs. Pp. 599, with 280 illustrations. Paris: Masson & Cie, 1932.

This is a first-class presentation of the facts concerning circulation in health and disease. The six chapters (on general anatomy, dynamics of the heart, electrocardiography, blood flow, arterial blood pressure and physiology of the capillaries) are contributed by six different authors. Of particular merit are the chapters on electrocardiography and on the physiology of the capillaries, being written by physiologists (Fredericq, Demoor) who themselves have made noteworthy contributions in these respective fields.

Human Cancer: Etiological Factors; Precancerous Lesions; Growth; Spread; Symptoms; Diagnosis; Prognosis; Principles of Treatment. By Arthur Purdy Stout, M.D., Associate Professor of Surgery, College of Physicians and Surgeons, Columbia University. Cloth. Price, $10. Pp. 1007, with 331 illustrations. Philadelphia: Lea & Febiger, 1932.

It is a pleasure to see a book on cancer that is not pervaded by some pet theory or treatment. This one is particularly modest, refrains from reviewing the history of theories, and separates known facts from those which are confusing to students and practitioners. The treatment of the subject is regional rather than organic, a distinction which brings the facts closer to the needs of clinicians. Clinically, the work is fairly complete yet is handled with no idea that our knowledge and conclusions will not be changed. The illustrations are unusually good, although the microscopic pictures present the prevailing artefacts, common to most if not all textbook illustrations made from paraffin and celloidin sections. This, however, does not detract from the clinical value of the work. The bibliography, with no claims to completeness, is sufficient to guide those who desire to investigate the subjects in more detail. The index is sufficiently complete to enable the student and physician to find readily the necessary practical information on cancer met in his daily activities. The book should be of great practical value on account of its brevity, arrangement, illustrations, good index and choice of practical clinical material.

Les diagnostics anatomo-cliniques de P. Lecène. Recueillis par ses élèves. II. Appareil génital de la femme. Partie 2. Par P. Moulonguet, professeur agrégé à la Faculté de médecine. Paper. Price, 80 francs. Pp. 379, with 243 illustrations. Paris: Masson & Cie, 1932.

This is the second of a series of books dealing with anatomic and clinical diagnosis to be published by the pupils of P. Lecène. The present volume is more in the nature of an elaborate atlas with detailed explanations of the illustrations. The latter are well reproduced and instructive. They include almost all the benign and malignant pathologic conditions of the uterus, tubes, ovaries and round ligaments. The text is clear and the author has included a good many German and American references. The book is worthy of a place in a gynecologist's library.

Life's Adventure: The Story of a Varied Career. By Elwood Worcester. Cloth. Price, $3. Pp. 362, with 11 illustrations. New York: Charles Scribner's Sons, 1932.

Worcester is the well known minister of Immanuel Church of Boston. This book is a rather detailed account of his life. He is a man of active mind with a tendency to mysticism, and he gives a recital of many-sided interests. He presents a familiar type of clergyman who with a good deal of versatility takes an interest in sports, art, literature and everything else in addition to religion which, it is assumed, indicates a "broad" man. He also represents a second type; he has a dilettante interest in science, particularly in medicine. In Worcester's case this interest led into psychic research and the application of religion to the cure of disease. The whole book is interesting as depicting the experiences of an active-minded character. On the subject of the application of religion to the treatment of the sick it has no lesson that is not old.

Medicolegal

The Care and Skill Required of Irregular Practitioners

(Kershaw v. Tilbury (Calif.), 8 P. (2d) 109)

Jo Dell Kershaw, about 9 years old, had acute osteomyelitis in her left tibia. Her mother was eager to avoid the operation which the attending physician had recommended. She made contact with one Lloyd E. Tilbury, a drugless healer, one of the defendants in this case. Tilbury professed to be an osteopathic physician and was licensed to practice in that capacity. He claimed, however, that he had perfected a device for diagnosing diseases and another for treating them by "the radio method." The exact nature of these devices was known only to Tilbury; they were not in general use and no school of medical practice or of drugless healing had accepted them.

Tilbury requested that the sick child write her name on a piece of paper and that the signature be submitted to him. He placed this signature in his diagnostic machine, and he and his wife, the latter acting as his assistant, manipulated certain dials on it. Tilbury then reported that the patient required immediate treatment but that in his opinion an operation was not necessary. The child was brought to him, and after examination with his "radio box" he said that she was suffering from meningitis but that "instead of settling in her back the germs had settled in her left leg." Nevertheless, he promised that inside of a week she would be well and be able to go home. Under the alleged guidance of the "radio box," hot vinegar stupes were applied to the patient's diseased leg and the patient was placed on a diet determined by the aid of the "radio box," given the "radio treatment" and placed in a "vit-o-net or magnetic blanket" until she perspired freely. The accumulation of pus soon found its way through an opening that it made over the patient's shin bone, but the infection continued to spread. After the patient had been treated by Tilbury from June 13 to August 3, she was placed under the care of a physician and kept in a hospital from August 13 until November 25, during which time a series of operations was performed. Ultimate recovery seemed likely, but the patient, it was said, would be permanently disabled.

The patient, through her guardian ad litem, sued Tilbury and his wife, alleging malpractice. A judgment for $30,000 was rendered against them, and they appealed to the district court of appeal, fourth district, where the judgment was affirmed as to Tilbury but reversed as to his wife.[1] An appeal was then taken to the Supreme Court of California.

The appellants based their appeal in part on the fact that the trial court permitted physicians and an osteopath to testify as experts, notwithstanding that they did not employ in their respective practices the methods followed by Tilbury and knew nothing concerning them. The qualifying questions asked of these witnesses, however, the Supreme Court held, were sufficient to establish their competence as witnesses in their respective fields. The fact that they were not familiar with Tilbury's devices and methods went to the weight to be given their testimony, not to its competence. A person may claim or pretend to have invented a machine for diagnostic and curative purposes, which is not known or recognized by any school of medical science and is alleged to possess powers of healing peculiarly within the knowledge of its inventor. That claim or pretense, however, is no reason why persons who have adequate knowledge acquired from education, experience and practice are not competent to judge whether treatment is carelessly or negligently given, even though they know nothing of the working of the machine itself. Otherwise, any one might undertake to treat a disorder, and no matter how carelessly his acts were performed the patient injured by such treatment would be without a remedy in law; he could find no one who, by reason of having adequate knowledge of the inventor's claims, could qualify as a witness with respect to the treatment administered. When any one by reason of his own "inventions" holds himself out as a healer of disease and accepts employment as such, he must be held to the duty of being reasonably skilful in his practice. When such person engages in experimentation, he will be held accountable for any damages proximately caused by his unskilful treatment.

The Supreme Court affirmed the judgment of the district court of appeal dismissing the suit as to Tilbury's wife, on the ground that she had acted only as his assistant or nurse, under his instruction. The Supreme Court concluded, too, that the jury's award of $30,000 damages was based on passion and prejudice directed at Tilbury's shortcomings, and not on the actual damages suffered by the patient. She was suffering from osteomyelitis before she consulted Tilbury, and at most he delayed her recovery, possibly aggravated her condition, and caused her unnecessary suffering during the period of his futile efforts. The court directed, therefore, that the amount of the damages awarded be reduced to $20,000.

1. Kershaw v. Tilbury (Calif.), 2 P. (2d) 389.

Workmen's Compensation Acts: Death Following Delayed Operation.—In June, 1925, an employee, as the result of an industrial accident, sustained a fracture of the femur, resulting in a deformity of the leg and a functional loss of 50 per cent. The physician of the employer advised a bone graft, but the employee refused to submit to the operation. Subsequently he was awarded compensation, which the employer paid. The employee continued in the employ of the employer. In August, 1928, the employee, regretting his refusal to submit to the bone graft, sought and obtained authorization to have the operation performed at the employer's expense. He died as the result of the operation. The state industrial board awarded compensation to the claimants, but its award was reversed by the supreme court of New York, appellate division, third department. The claimants appealed to the Court of Appeals. The question, said the Court of Appeals, is whether the death was the result of the original injury. The operation was performed to counteract or reduce the effect of the original fracture, which would otherwise have been permanent. After experience had demonstrated to the employee the full disadvantage of his condition, he could still avail himself of remedies reasonably calculated to reduce that disadvantage. The chain of cause and effect is longer, but it remains unbroken. The earlier refusal postponed the operation, but it did not cause it. The operation was resorted to as a reasonable attempt to reduce the effect of the original injury. The fact that the employer had already paid the award made for the original injury is irrelevant, if death results thereafter from a reasonable effort to reduce the effect of the injury. The award of the industrial board was affirmed.—*Lofstedt v. United States Gypsum Co. (N. Y.), 179 N. E. 473.*

Society Proceedings

COMING MEETINGS

American Academy of Physical Therapy, Philadelphia, October 12-14. Dr. Arthur H. Ring, 163 Hillside Avenue, Arlington, Mass., Secretary.

American Association of Railway Surgeons, Chicago, November 2-4. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

American College of Surgeons, St. Louis, October 17-21. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Public Health Association, Washington, D. C., October 24-27. Dr. Kendall Emerson, 450 Seventh Avenue, New York, Acting Executive Secretary.

American Society for the Study of Disorders of Speech, St. Louis, November 25-26. Dr. Samuel D. Robbins, 419 Boylston Street, Boston, Secretary.

American Society of Tropical Medicine, Birmingham, Ala., November 16-18. Dr. Henry E. Meleney, Vanderbilt University School of Medicine, Nashville, Tenn., Secretary.

Association of American Medical Colleges, Philadelphia, November 14-16. Dr. Fred C. Zapffe, 5 South Wabash Avenue, Chicago, Secretary.

Associated Anesthetists of the United States and Canada, New York, October 17-21. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary.

Association of Military Surgeons of the United States, Hartford, Conn., October 20-22. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Secretary.

Clinical Orthopedic Society, Chicago, November 10-12. Dr. E. B. Mumford, Chamber of Commerce Building, Indianapolis, Secretary.

Inter-State Postgraduate Medical Association of North America, Indianapolis, October 24-28. Dr. W. B. Peck, 12½ East Stephenson Street, Freeport, Ill., Managing Director.

Radiological Society of North America, Atlantic City, November 28-December 2. Dr. Donald S. Childs, Medical Arts Building, Syracuse, New York, Secretary.

Southern Medical Association, Birmingham, Ala., November 16-18. Mr. C. P. Loranz, Empire Building, Birmingham, Secretary.

Virginia, Medical Society of, Richmond, November 1-3. Miss Agnes V. Edwards, 1200 East Clay Street, Richmond, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

16: 1-324 (July) 1932

Extended Study of Variations in a Single Race of Coli-Like Ameba and Its Bearing on Specificity of Councilmania Lafleuri. R. M. Stabler, Baltimore.—p. 1.

Trypanocidal and Reproduction-Inhibiting Antibodies to Trypanosoma Lewisi in Rats and Rabbits. W. H. Taliaferro, Chicago.—p. 32.

Observations on Life History of Chilomastix. G. H. Ball, Los Angeles. —p. 85.

Studies of Antigenic Properties of Some Free Living and Pathogenic Amebas. Lucy Heathman, Lawrence, Kan.—p. 97.

Further Studies on Antigenic Properties of Pathogenic and Free Living Amebas: II. Complement Fixation in Amebic Dysentery. N. Sherwood and Lucy Heathman, Lawrence, Kan.—p. 124.

Races of A. Maculipennis. L. W. Hackett, E. Martini and A. Missiroli, New York.—p. 137.

Effect of Various Temperatures in Modifying Extrinsic Incubation Period of Yellow Fever Virus in Aedes Aegypti. N. C. Davis, Baltimore.—p. 163.

Effects of Heat and of Cold on Aedes (Stegomyia) Aegypti: Survival of Stegomyia Eggs Under Abnormal Temperature Conditions. N. C. Davis, Baltimore.—p. 177.

Four Years of Daily Measurement of Ultraviolet Component of Sunlight by Acetone-Methylene Blue Method. W. C. Russell, C. H. Howard and O. N. Massengale.—p. 192.

Further Studies on B. Pseudotuberculosis. H. A. Reimann, Minneapolis.—p. 206.

Seasonal Life History of Anopheles Maculipennis, with Reference to Humidity Requirements and "Hibernation." S. B. Freeborn, San Francisco.—p. 215.

*Relation Between Size of Frontal Nasal Sinuses and (1) Attacks of Upper Respiratory Disease (Common Cold) and (2) Certain Nose and Throat Conditions. C. E. Palmer, Baltimore.—p. 224.

*Hardening Procedures and Upper Respiratory Disease (Common Cold). W. M. Gafafer, Baltimore.—p. 233.

Relation of Diet to Susceptibility of Dogs to Ancylostoma Caninum. A. O. Foster and W. W. Cort, Baltimore.—p. 241.

Effects of Temperature and Humidity on Ova of Toxocara Canis and Trichuris Vulpis. A. R. Onorato, Baltimore.—p. 266.

Experimental Studies on Certain Factors Influencing Development and Viability of Ova of Human Trichuris as Compared with Those of Human Ascaris. L. O. Nolf, Baltimore.—p. 288.

No Inhibition of Transplantable Sarcoma and Carcinoma of Rat After Depletion of Magnesium by Diet. R. E. Gardner, E. R. Orent, E. V. McCollum and R. R. Hyde, Baltimore.—p. 323.

The Size of Frontal Nasal Sinuses.—Palmer's study was suggested by the thought that the magnitude of the accessory nasal sinuses may be associated with the number and duration of attacks of upper respiratory disease (common cold). The records utilized were histories, physical examinations made at the beginning of the study, and reports of disease of the upper respiratory tract in a group of 262 normal individuals. It was found that there was no evidence of association between size of frontal sinus and (1) number of attacks of upper respiratory disease (common cold), (2) duration of upper respiratory attacks (common cold), and (3) the presence or absence of any one of twelve recorded conditions of the upper respiratory passages.

Hardening Procedures and Disease of Upper Respiratory Tract.—Gafafer observed more than 300 adults for thirty-five weeks, every effort being made to secure reports of all attacks of disease of the upper respiratory tract (common cold). The group that during the winter slept with windows partially open and the group that slept with windows wide open showed no significant difference in respect of frequency and severity of the attacks. The group that exercised outdoors less than eight hours a week in the summer, and the group that exercised eight hours or more a week, showed no significant difference in respect of frequency, severity and type of attack. The group that exercised outdoors less than four hours a week in the winter, and the group that exercised four or more hours a week, showed no significant difference in respect of frequency, severity and type of attack.

American Journal of Medical Sciences, Philadelphia

184: 149-296 (Aug.) 1932

*Brain Tumors: Report of Types Seen in General Practice. R. Zollinger and E. C. Cutler, Cleveland.—p. 149.

Endocrine Therapy in Psychoses. R. G. Hoskins, Boston, and F. H. Sleeper, Worcester, Mass.—p. 158.

*White Blood Cell Counts in Convalescence from Infectious Diseases. P. Reznikoff, New York.—p. 167.

Achlorhydria: Review of Two Hundred and Ten Cases in Patients with Gastro-Intestinal Complaints. H. L. Bockus, J. Bank and J. H. Willard, Philadelphia.—p. 185.

Transient Complete Bundle-Branch Block. R. S. Morris and J. McGuire, Cincinnati.—p. 202.

Arteriolar Studies in Patients with Hypertensive Heart Disease Without Hypertension. E. F. Horine, M. M. Weiss and Marion F. Beard, Louisville, Ky.—p. 206.

Combined Tape Measure and Stethoscope Tube. A. S. W. Touroff, New York.—p. 213.

Changes Produced in Blood Picture by Removal of Normal Mammalian Spleen. E. B. Krumbhaar, Philadelphia.—p. 215.

Van den Bergh Reaction and Bromsulphalein Test in Estimation of Hepatic Functional Impairment. A. Cantarow, Philadelphia.—p. 228.

Clinical Reactions to Vaccines as Guides in Treatment. W. S. Thomas and M. D. Touart, New York.—p. 240.

Medical Importance of Focal Infective Prostatitis. P. S. Pelouze, Philadelphia.—p. 254.

"Asexualization" of Plasmodium in Induced Malaria. N. Kopeloff, N. Blackman and B. McGinn, New York.—p. 262.

Brain Tumors.—Zollinger and Cutler state that there are several reasons for surgical intervention in cases of tumor of the brain. Regardless of the preoperative pathologic diagnosis, exploration may reveal a lesion that is amenable to radical surgical treatment. Lesions that are amenable to surgery are meningiomas, certain acoustic neuromas and astrocytomas. At operation it is hoped to confirm the presence of a tumor and more accurately to localize it. If a specimen for histologic study is obtained, the future course of the patient will be better understood and roentgen therapy can be more accurately given. The prognosis in patients with gliomas can be made with fair accuracy as to time and subsequent course only by histologic study. A decompression is usually done at the time of the exploration, and this provides a safety valve which will take care of a reactionary edema or even hemorrhage into the tumor resulting from roentgen therapy. Roentgen therapy should be combined with surgery in the treatment of gliomas. The more embryonic the predominant type of cell in the tumor, the more effective this form of treatment will be. Cystic tumors of the pituitary should be treated surgically, while many solid adenomas of the anterior lobe of the pituitary may be controlled by roentgen therapy alone.

Leukocyte Counts in Convalescence from Infectious Diseases.—Reznikoff points out that in recovery from an acute infectious disease three more or less distinct phases may be demarcated by the hemogram: subsidence of the acute stage, convalescence, complete return to normal. The subsidence of the acute stage is characterized by a decrease in immature polymorphonuclear leukocytes and a marked, even if transitory, rise in monocytes. Convalescence is characterized by a normal immature polymorphonuclear leukocyte count, a marked rise in lymphocytes (often above 40 per cent) and a variable eosinophilia. Complete recovery is characterized by a return of the lymphocytes to a normal range.

American Journal of Orthopsychiatry, Menasha, Wis.

2: 197-314 (July) 1932

Problem of Delinquency. D. M. Levy, New York.—p. 197.

Study of School Adjustments of Children Who Later in Life Became Psychotic. J. Kasanin and Louise Veo, Boston.—p. 212.

Study of Children of Psychotic Parents. G. H. Preston and Rosemary Antin, Baltimore.—p. 231.

Kindergarten Guidance Project in Public School System: Preliminary Report. Ethel Kawin, Chicago.—p. 242.

Contribution to Study of Truancy. Isra T. Broadwin, New York. —p. 253.

Some Observations of Convulsive Disorders in Children. L. H. Bartemeier, Detroit.—p. 260.

Creation and Handling of Resistance in Clinical Practice. F. H. Allen, Philadelphia.—p. 268.

Autobiographic Material Concerning Childhood Environments and Effects on After-Adjustment of One Hundred Recidivists and One Hundred College Freshmen. G. C. Stevens, Yellow Springs, Ohio. —p. 279.

American Journal of Psychiatry, Baltimore

12: 1-196 (July) 1932

Presidential Address: Place of American Psychiatric Association in Modern Psychiatric Organization and Progress. W. L. Russel, White Plains, N. Y.—p. 1.
*Histopathology of Therapeutic (Tertian) Malaria. W. L. Bruetsch, Indianapolis.—p. 19.
Medical and Psychiatric Services in Federal Penal and Correctional Institutions. W. L. Treadway, Washington, D. C.—p. 67.
Mental Hygiene Study of Juvenile Delinquency: Its Causes and Treatment. J. Levy, New York.—p. 73.
*Prolonged Narcosis as Therapy in Psychoses. H. D. Palmer and A. L. Paine, Philadelphia.—p. 143.

Histopathology of Therapeutic Malaria.—Bruetsch states that the immediate tissue reaction of the body to the malaria plasmodium consists in a stimulation of the reticulo-endothelial apparatus (system of histiocytes), leading to a new formation of macrophagic tissue in various organs. Both the specific endothelia of the liver, spleen, lymph nodes, and bone marrow and the histiocytes of the connective tissue take part in the stimulation. In therapeutic malaria the blood histiocytes are mainly derivatives of the specific endothelium. To a minor degree, common capillary endothelium is engaged in the formation of intravascular endothelial phagocytes. This has been established for the endothelium of the capillaries of the brain cortex and for the endothelial cells of the capillary venules of certain connective tissues. By means of the supravital technic, it has been found that the intravascular macrophagic phagocytes are clasmatocytes in the sense of Sabin, Doan and Cunningham. The capillary endothelial cells, although they show signs of stimulation, do not become phagocytic while they retain their anatomic position in the vessel wall. Besides involving the histiocytes there is an activation of the undifferentiated embryonic mesenchymal cells. The fibroblast, the mesothelial cell and the histiocyte are distinct types of cells. While both the fibroblast and the mesothelial cell are also amenable to stimulation, they still can be distinguished from the active histiocyte in malaria-infected tissue. In the nervous system the macrophagic response is greatest in the leptomeninges. In the arachnoid the malaria-stimulated histiocyte stands out distinctly from the less active arachnoidal lining cell. In the adventitial sheaths of the vessels of the brain cortex the mesodermal phagocytes are only slightly stimulated. About middle-sized and large cortical vessels a small increase in the number of macrophages was found. In the perivascular spaces of the large vessels in the white matter, and in the striatum, and in the pons, stimulated histiocytes are more numerous. The small mesodermal elements along the capillaries of the brain cortex have not been seen to be activated. The microglia, as a whole, does not take part in the general reaction of the reticulo-endothelial system. Therapeutic malaria produces an activation of the mesodermal tissue in which the stimulation of the histiocytes and the activation of the undifferentiated mesenchymal cells are conspicuous features.

Prolonged Narcosis as Therapy in Psychoses.—According to Palmer and Paine, American psychiatry in the past three years has manifested a renewed interest in prolonged deep narcosis as a therapeutic procedure in the psychoses. Some startling recoveries, of both permanent and temporary nature, have been reported in certain cases heretofore regarded as hopeless institutional types. The authors' experience with the various drugs of the barbital group in a series of twenty-six cases of psychosis leads them to assert that sodium amytal is relatively nontoxic and offers a wide margin of safety. So far in their investigation no patient subjected to the narcosis treatment has been made worse, while 80.8 per cent have been improved or have recovered. Ten patients (38.5 per cent) recovered completely, eleven (42.3 per cent) were definitely improved and only five (19.2 per cent) remained unchanged. All (five) cases of acute mania made recoveries. The authors' results indicate that the greatest success with this form of treatment can be anticipated in the manic-depressive group. This is directly opposed to the observations of several investigators who regard sodium amytal as a specific therapeutic agent in schizophrenia and a drug distinctly contraindicated in manic-depressive psychosis. Prolonged narcosis as a therapeutic procedure in psychiatry should be carefully evaluated by systematic trial in large series of cases of all types. The mechanism of recovery or improvement seems to be psychologic rather than biochemical. A psychodynamic formulation seems not only more reasonable and more tenable but is readily correlated with and supported by well founded psychologic and psychiatric observations.

American Journal of Tropical Medicine, Baltimore

12: 279-329 (July) 1932

Skin Hypersensitiveness to Hookworm Antigen. G. W. Bachman, Santa Monica, Calif., and R. Rodriquez-Molina, Rio Piedras, Porto Rico.—p. 279.
Pathology of Amebiasis in Carriers. C. F. Craig, Washington, D. C. —p. 285.
New Medium for Cultivation of Endamoeba Histolytica. J. H. St. John, Manila, Philippine Islands.—p. 301.
Endamoeba Histolytica: Unusual Strains. Dorthy A. Koch and A. C. Reed.—p. 307.
Nutrition Studies of Foodstuffs Used in Porto Rican Dietary: I. Vitamin Content of White and Yellow Yams. J. H. Axtmayer and D. H. Cook.—p. 317.
Vitamin B Complex of Coconut Water. J. H. Axtmayer.—p. 323.

Archives of Otolaryngology, Chicago

16: 1-142 (July) 1932

Noma. G. B. Trible and A. Dick, Washington, D. C.—p. 1.
Experimental Surgery of Nose and Sinuses: I. Changes in Morphology of Epithelium Following Variations in Ventilation. A. Hilding, Rochester, Minn.—p. 9.
Development of Otic Capsule: I. Resorption of Cartilage in Canal Portion of Otic Capsule in Human Fetuses and Its Relation to Growth of Semicircular Canals. T. H. Bast, Madison, Wis.—p. 19.
Effect of Mineral Oil and Solutions of Ephedrine on Normal Nasal Mucous Membrane of Rabbit. W. B. Stark, Rochester, Minn.—p. 39.
Teratoid Tumor of Pharynx: Report of Case in Fetus of Six months. F. D. Hankins and W. G. Harding, Los Angeles.—p. 46.
Plasma Cell Myeloma of Pharynx and Cervical Region Without Skeletal Involvement. G. B. New and F. R. Harper, Rochester, Minn.—p. 50.
Mastoid Operation: A Glimpse into Its History. C. Ballance, London, England.—p. 55.
Otitis Externa Mycotica: Comments Concerning Prevalence, Diagnosis and Treatment of Otomycosis. K. Gill, San Antonio, Texas.—p. 76.
*Vasomotor Rhinitis: Its Treatment by Injection of Alcohol into Sphenopalatine Ganglion. T. E. Walsh, Chicago.—p. 83.

Vasomotor Rhinitis.—According to Walsh, vasomotor rhinitis was described as early as 1802. Although it is commonly caused by sensitivity to protein, there is a type of case in which no sensitivity can be demonstrated, the so-called nonallergic type. The injection of alcohol into the sphenopalatine ganglion gives symptomatic relief in both the allergic and the nonallergic type. The author reports that in a series of ninety patients so treated there were 9 per cent failures, due, it is believed, to faulty technic; 30 per cent were symptom free from one to six months, 31 per cent from six to twelve months and 30 per cent for more than a year. Operative measures in the nose are of no value in the treatment of vasomotor rhinitis. Surgical treatment of the complications should be as conservative as possible.

Canadian Medical Association Journal, Montreal

27: 1-116 (July) 1932

Economic Conditions in Medicine. A. S. Monro, Vancouver, B. C.—p. 1.
Simple Goiter. A. C. Abbott, Winnipeg.—p. 8.
Coarctation of Aorta: Report of Three Cases. G. F. Strong, Vancouver, B. C.—p. 15.
Chordoma: Report of Two Cases. O. L. Stanton, Toronto.—p. 20.
*Transurethral Resection of Prostatic Obstructions. J. R. Caulk, St. Louis, and J. L. Wiseman, Winnipeg.—p. 23.
Traumatic Chylothorax Due to Intrathoracic Rupture of Thoracic Duct. D. S. Macnab and E. P. Scarlett, Calgary, Alta.—p. 29.
*A Plea for Early Compression in Pulmonary Tuberculosis. N. Bethune, Montreal.—p. 36.
*Rôle of Iodine in Management of Hyperthyroidism. G. S. Fahrni, Winnipeg.—p. 42.
Treatment of Migraine with Emmenin. N. H. Blakie and J. C. Hossack, St. Boniface, Manit.—p. 45.
Management of Posture in Children. R. H. Wiggins, Victoria, B. C. —p. 47.
Sodium Amytal and Its Use in Treatment of Eclamptic Convulsions. G. L. Watt, Toronto.—p. 51.
If State Health Insurance Comes? E. S. Moorhead, Winnipeg.—p. 54.

Transurethral Resection of Prostatic Obstructions.—Caulk and Wiseman do not belittle the benefits occasioned by radical prostatic surgery but merely suggest that, in spite of the refinements in technic, the added safeguards of regional and spinal anesthesia, the recognition of the importance of gradual recompression of the kidneys, and adequate preoperative preparation of patients, it continues to be attended with a persistently high mortality rate and dangerously incapacitating complications

and sequelae. They believe that the mortality rate of the operation, particularly when performed by unskilled operators, closely approximates 30 per cent. Obviously, there is an urgent need for its replacement by other measures, provided they prove equally corrective. This has been made possible by transurethral resection of the prostrate, which fulfils all the criteria demanded of an acceptable surgical procedure; i. e., simplicity of operative technic, applicability, freedom from complications and disabling sequelae, a negligible mortality rate, and above all uniformly satisfactory and lasting results. The authors support these claims by argumentative proof and operative results. In conclusion they urge the more universal adoption of this method for the treatment of prostatic obstructions regardless of their size, by virtue of its demonstrated applicability with attendant freedom from complications and a practically negligible mortality rate. The operative results are uniformly consistent and beneficial and are in all respects comparable to those obtained by the radical operative procedures.

Early Compression in Pulmonary Tuberculosis.—According to Bethune, the treatment of pulmonary tuberculosis with cavities is a surgical problem; not that surgical procedures (and he includes artificial pneumothorax) are immediately indicated in every case, but that surgery for cavities and for lesions which will in all probability develop cavities later is nearly always indicated. The decision whether or not, and when, to invoke surgical rest is one of the most difficult in the whole realm of modern therapeutics and demands the highest form of clinical judgment and experience. There are only two contraindications, and only one of these is absolute. The first is the rapidly spreading, toxic, terminal and hopeless bilateral disease; and the second is the minimal or, occasionally, the moderately advanced disease without cavitation which is showing marked evidence of rapid absorption, healing or fibrosis under absolute rest in bed, when the affected person can afford the time and the money to carry on for an indefinite period with the confident assurance of complete restoration of health at the end of several years of rest. All others, the precavernous and the frankly cavernous, should have some form of active collapse.

Iodine in Management of Hyperthyroidism.—Fahrni calls attention to the fact that iodine has been of inestimable value as an aid in preoperative care in hyperthyroidism and has contributed in no small measure to the lowering of the mortality rate in these operations, particularly among those who accept all bad risk goiters for operation. Nearly two years ago he reported a mortality rate of 0.92 per cent for the last 844 consecutive thyroidectomies, and since then he has lost 2 cases in 530 consecutive thyroidectomies, which makes a mortality rate of 0.377 per cent. There are many factors, such as the period of operation and the technic, which contribute to the responsibility for this improvement, but he feels that no such low mortality in this class of patient can be obtained without the assistance of iodine medication. The postoperative use of iodine is also important. As soon as thyroidectomy has been performed, every effort should be made to keep the patient fairly well saturated with iodine. During the first twenty-four hours after the operation the patient is often nauseated and may vomit periodically, and the stomach cannot be used for the administration of iodine. The author always gives iodine in physiologic solution of sodium chloride by rectum within an hour after operation, and if the patient is very sick he gives from 1 to 2 Gm. of sodium iodide intravenously, once or twice during the first twenty-four hours. After this, the patient is usually able to take by mouth a sufficient quantity of the drug. If a fairly radical operation has been performed hyperthyroidism will disappear within a week, but iodine should be continued for at least some weeks after operation. The dose should be gradually diminished and as long as the patient remains well no further iodine is necessary.

Colorado Medicine, Denver

29: 309-348 (Aug.) 1932

Medicine in China. W. G. Lennox, Boston.—p. 313.
Precocious Menstruation: Three Case Reports Including One with Carcinoma of Uterus at Two Years. J. W. Amesse, Denver. —p. 317.
Primary Streptococcic Peritonitis in Children. W. W. Barber, Denver. —p. 324.

Endocrinology, Los Angeles

16: 337-454 (July-Aug.) 1932

*Laurence-Moon-Biedl Syndrome. W. A. Reilly and H. Lisser.—p. 337.
Parathyroid Deficiency: Case. G. H. Hoxie, Kansas City, Mo.—p. 358.
Estimation of Estrin and Follicle-Stimulating Hormone in Urine as Index of Therapy in Menstrual Dysfunction. R. Kurzrok, J. Boylan and Margaret A. Creelman, New York.—p. 361.
Follicular Hormone in Urine as an Index of Therapy in Menopause. R. Kurzrok, New York.—p. 366.
*Thyrotoxicosis and Tetany: Some Aspects of Mineral Metabolism in Morbus Basedowi. E. Ask-Upmark, Lund, Sweden.—p. 369.
Further Studies on Erythrocyte Sedimentation Time in Relation to Function of Thyroid Gland. E. P. Tschernozatonskaia, Moscow, Russia.—p. 397.
Somnolence Associated with Pituitary Cachexia: Report of Patient Who Responded to Pituitary Treatment. B. E. McGovern, New York. —p. 402.
Periodic Paralysis Occurring in Course of Exophthalmic Goiter. J. M. Mora, Chicago.—p. 407.
Myxedema with Ascites and Atony of Urinary Bladder: Case. W. Evans, Boston.—p. 409.
*Insulin Allergy. F. N. Allan and L. R. Scherer, Rochester, Minn. —p. 417.
Note on Relationship Between Nystagmus Duration and Thyroid Condition. O. H. Mowrer and W. R. Casey, Baltimore.—p. 431.
Treatment of Early Vomiting of Pregnancy with Suprarenal Cortex: Case Reports. W. N. Kemp, Vancouver, B. C.—p. 434.

Laurence-Moon-Biedl Syndrome.—In a careful search and appraisal of the literature, Reilly and Lisser found seventy-three cases which were entitled in their opinion to the diagnosis of Laurence-Moon-Biedl syndrome. These are analyzed in tabular form. The authors add four more cases, two unquestionable instances of the complete syndrome and two examples in which the syndrome was only partially manifested, making seventy-seven cases in all. Two of their patients responded surprisingly well to endocrine therapy. Not only weight loss and increased animation occurred but also definite improvement in vision.

Thyrotoxicosis and Tetany.—Ask-Upmark reports a case in which tetany appeared in the course of exophthalmic goiter, and he gives a brief review of analogous observations in the literature. The problem of the relation between the two conditions is presented for analysis. The newer knowledge of the mineral metabolism in hyperthyroidism is summarized in two theses: First, the calcium content of the blood is possibly of importance for the development of thyroid changes; second, in hyperthyroidism there is an exaggerated excretion of calcium and phosphorus by the body, in spite of the maintenance of the normal blood levels of these substances. The pathogenesis of tetany in exophthalmic goiter is discussed, the author arriving at the conclusion that there are two varieties. In one variety the tetany is without doubt the primary condition and is caused probably by parathyroid insufficiency, whereas the thyrotoxicosis is to be considered as a secondary phenomenon, perhaps in certain respects of compensatory significance. In the other variety the hyperthyroidism may be the primary disability, which is complicated by the appearance of tetany. The cause of the second variety of tetany must for the present be considered as unknown; alkalosis can scarcely be the cause; parathyroid insufficiency cannot be the only cause; and certain metabolic disturbances in thyrotoxicosis may, it is believed, favor the development of this tetany. Further investigations on each of these points is necessary. The osteomalacia, the tracheomalacia and the increased growth of the juvenile skeleton in hyperthyroidism are touched on and thymus hypertrophy is discussed. In consideration of the recent investigations of Nitschke and Schneider, which, however, require supplementation, the author arrives at the conclusion that the hyperplasia of the thymolymphatic system may be regarded as secondary to the thyrotoxicosis.

Insulin Allergy.—The experience of Allan and Scherer shows that hypersensitiveness to insulin is not uncommon, occurring in approximately one of eight to ten of their cases. In four of a hundred consecutive cases, hypersensitiveness was manifested by generalized symptoms of anaphylaxis. In eighty-four cases there was only a mild reaction at the site of injection, which was usually relieved by a change of the type of insulin or by spontaneous desensitization. In twelve cases there was a severe local reaction with less relief by change of insulin. These cases and the 4 per cent of cases in which symptoms were general presented difficult problems in treatment. Fortunately, no case was encountered in which diabetes became refractory

to insulin because of allergy. The cases reported in which failure of insulin to exert its usual effect was attributed to allergy indicate the danger that may result from this phenomenon. In these cases, failure to give insulin may lead to death from acidosis if the diabetes is severe. Use of insulin may cause danger from anaphylactic shock. The following policy seems wise: Attempts should be made to control diabetes by diet if possible. If this cannot be done, insulin must be employed. The danger from failure to receive it exceeds the danger that may result from anaphylaxis or from possible development of antibodies toward it. This opinion may require modification but is justified by present knowledge and experience. If there is no type of insulin free from allergic effect, attempts should be made to bring about desensitization by beginning treatment with minimal dosage and increasing the amount gradually. If acidosis develops, and if diabetes becomes refractory, the dosage of insulin should be increased. Any other policy is dangerous. So long as the urine contains sugar and acetone bodies, more insulin should be employed. Whenever resistance to insulin is encountered from any cause, attention to this rule may save life.

Journal of Allergy, St. Louis

3: 423-530 (July) 1932

*Studies in Hypersensitiveness in Certain Dermatoses: I. Neurodermatitis (Disseminated Type). Marion B. Sulzberger, W. C. Spain, Florence Sammis and H. I. Shahon, New York.—p. 423.
Effect of Intradermal and Intravenous Injections of Toxic Staphylococcus Filtrates in Rabbits of Varying Ages. E. L. Burky, Baltimore.—p. 438.
*Efficacy of Hothouse Grown Pollen as Compared with Field Grown Pollen. H. B. Wilmer and H. M. Cobe, Philadelphia.—p. 442.
Serial Skin Tests as Guide in Treatment of Hay Fever: Preliminary Report. A. Colmes, Boston.—p. 449.
Emanations of Flies as Exciting Causes of Allergic Coryza and Asthma: V. Study of Atopic Reagins of Caddis Fly, Butterfly and Moth. S. J. Parlato, Buffalo.—p. 459.
*Flaxseed Sensitization with Review of Literature: Report of Six Cases. Lucile Ruffe Grant, Grand Rapids, Mich.—p. 469.
Ragweed Dermatitis Recurring Over a Period of Thirteen Years: Case. L. N. Gay and L. W. Ketron, Baltimore.—p. 478.
*Dermatitis Medicamentosa Due to Ephedrine. S. S. Bullen, N. Francis and J. M. Parker, Rochester, N. Y.—p. 485.
Pollen Incidence in Central Arizona. E. W. Phillips, Phoenix, Ariz. —p. 489.
Type of Drug Allergy Caused by Contact Sensitiveness to Ether and to Chlorine. W. W. Duke, Kansas City, Mo.—p. 495.

Hypersensitiveness in Certain Dermatoses.—Sulzberger and associated authors point out that "eczema" originally embraced a large number of dermatologic conditions which have gradually become separated from this group through discoveries concerning their etiology and pathogenesis. Although there is still a great amount of confusion regarding the term, due mainly to transitional forms and to the eczematization of other dermatoses, as well as to the superposition of other dermatologic conditions on eczematous sites, the foremost European workers in this field now use "eczema" to designate a condition with the following characteristics: a dermatitis usually due to contact irritants, generally of nonprotein nature and consisting of erythema, papules, scaling and, most important of all, clinical or histologic vesiculation. There is usually no marked predilection for the flexures, no history of other personal or family allergies, no response with wheal formation to intradermal or scratch testing, and no successful demonstration of reagins. On the other hand, the patch tests with contact irritants generally give one or more positive eczematous reactions, appearing after twenty-four or more hours following the contact. The authors believe that much of the confusion regarding the etiology and immunologic position of eczema is due to the fact that American workers do not recognize the European usage of the term, and vice versa, and that it is being applied to entirely different and unrelated conditions. In America "eczema" often means the condition variously designated as "prurigo diethésique," "lichen chronicus simplex disseminatus," "pruritus with lichenification," "allergic eczema," "flexural eczema" and "hay fever eczema." This should not be confused with eczema in the sense of contact dermatitis. It is for this reason that they prefer as a designation for the specific group studied by them a term in widespread general usage among most dermatologists, one which, though by no means ideal, avoids ambiguity by elimination of the word "eczema"; namely, neurodermatitis of disseminated type. The results of their study aid in establishing the picture of neurodermatitis disseminatus as an atopic disease of the most classic type, often with a surprisingly high degree of polyvalent hypersensitiveness. This picture is entirely different from that of eczema of contact type, and there should be no danger of confusion in typical cases. In atypical cases with clinically unclear or transitional forms and with indefinite histories, the results of direct tests and patch tests with standard series of excitants may prove useful guides to differential diagnosis and logical therapy.

Efficacy of Hothouse Grown Pollen.—According to Wilmer and Cobe, the pollen grown under glass shows greater toxicity or skin reacting quality than field grown pollen. It also shows less contamination by bacteria and fungus growth, thereby minimizing foreign protein and increasing the pollen protein content of the extract. Pollen may retain its reacting substance for an indefinite period, but the degree of reacting principle varies according to its age and purity. The inconsistent results of treatment over several years depends on the fact that the active principle of most pollen varies from year to year dependent on varying climatic factors. It is at present possible to surmise that better and more consistent results in treatment will be gained with pollen grown under regulated conditions.

Flaxseed Sensitization.—In testing 111 patients with a series of 150 to 175 allergens, Grant noted that six showed marked positive reactions to flaxseed when tested by the scratch method. Five of the patients of this group were asthmatic, and three of them had complete relief from asthma by avoiding contact with flaxseed products, while a fourth had a complete relief with desensitization. These six cases call attention to the frequency of flaxseed sensitization, particularly in persons living in rural communities and having contact with animal feed—as in four of the cases flaxseed or linseed meal in cattle rations or chicken feed was the source of contact.

Dermatitis Medicamentosa Due to Ephedrine.—On the basis of two cases, which they report, Bullen and his associates are of the opinion that allergic reactions following the use of ephedrine, either by ingestion or by application to the nasal mucous membrane, are probably more common than the few reports in the literature would indicate. The reactions may occur within a few hours after the first dose of the drug or only after a nasal spray containing ephedrine has been used for several months. Most of the allergic responses have appeared on the skin, either in localized areas at the point of contact with the drug or in the form of a generalized dermatitis followed by desquamation, although visceral manifestations may occur. The so-called patch or contact test seems to offer a safe and reasonably sure way of confirming the diagnosis.

Journal of Nutrition, Springfield, Ill.

5: 325-450 (July) 1932

Metabolic Studies in a Case of Osteitis Deformans. I. M. Rabinowitch, Montreal, Canada.—p. 325.
*Addition of Raw Beef or Meat Scrap to Wheat-Milk Diet. W. C. Russell, New Brunswick, N. J.—p. 347.
*Effect of Rachitogenic Diets on Thyroid Gland of Albino Rat. Juanita Thompson, Toronto, Canada.—p. 359.
Utilization of Calcium in Soy Bean Diets. W. H. Adolph and Shen-Chao Chen, Peiping, China.—p. 379.
Heat Production of Cattle in a Respiration Calorimeter as Related to Rate of Ventilation and to Moisture Content of Air. E. B. Forbes, W. W. Braman and M. Kriss, State College, Pa.—p. 387.
Economy of Conversion of Food Energy into Milk Energy by Dairy Cow. E. B. Forbes and L. Voris, State College, Pa.—p. 395.
Comparative Study of Rabbits Maintained on Barley or Alfalfa. F. Bischoff, W. D. Sansum, M. Louisa Long and R. D. Evans, Santa Barbara, Calif.—p. 403.
Action of Radioactive Substances on Vitamins. A. G. Hogan, C. L. Shrewsbury, G. F. Breckenridge and W. S. Ritchie, Columbia, Mo. —p. 413.
Saline and Alkaline Drinking Waters. V. G. Heller, Stillwater, Okla. —p. 421.

Addition of Raw Beef or Meat Scrap to a Wheat-Milk Diet.—Russell describes experiments in which he demonstrated that the addition of fresh beef or of a meat scrap to a wheat-milk diet, used as a breeding colony ration for white rats, improved reproduction and the growth rate and general vigor of the young as compared with the performance on the wheat-milk diet. The use of dried yeast with the wheat-milk diet caused a slight improvement in reproduction, but the growth

rate and general vigor of the young were not bettered. The improved performance on the wheat-milk diet supplemented with fresh beef or with meat scrap cannot be due chiefly to an increase in calcium and phosphorus or to an increase in the calcium phosphorus ratio.

Effect of Rachitogenic Diets on Thyroid of Rat.—Thompson studied the thyroids from 385 rats. Diffuse hyperplasia was produced in rats through the feeding of the Steenbock rachitogenic diet or its various modifications. Hyperplasia developed in the presence or absence of the antirachitic vitamin. The factors underlying the development of hyperplasia in experimental animals on these diets were a deficiency of iodine, associated with an excessive amount of calcium carbonate. Increasing the amount of calcium carbonate in diets deficient in iodine resulted in enhancement of the degree of hyperplasia. Variations in the degree of hyperplasia were found within similar experimental groups. The addition of a small amount of potassium iodide to the diets prevented the development of hyperplasia.

Laryngoscope, St. Louis

42: 497-578 (July) 1932

Apparatus Used in Recent Baltimore Experiments on Physiology of Ear. E. G. Witting, Baltimore.—p. 497.
*Functional Ear Examination in Tumors of Acoustic Nerve: Report of Cases. P. Northington, New York.—p. 506.
Sclerotic Mastoiditis and Intracranial Complications. D. N. Husik, Philadelphia.—p. 519.
Lateral Sinus Thrombosis with Septicemia: Recovery: Report of Five Cases. E. R. Mayerberg, Wilmington, Del.—p. 531.
Subcutaneous Neurotomy of External Nasal Nerve for Persistent Pain and Tic: Report of Case. E. F. Ziegelman, San Francisco.—p. 544.
Dietetic Treatment in Chronic Sinus Diseases. E. V. Ullmann, Portland, Ore.—p. 552.

Tumors of Acoustic Nerve.—Northington states that in tumors of the acoustic nerve the duration of the ear manifestations before the diagnosis is made justifies making functional ear tests at an early date in patients having a suggestive history. When positive observations are present, a complete neurologic examination should be made. The results of the rotation tests are not reliable in indicating the vestibular impairment in tumors of the acoustic nerve. The caloric tests, on the other hand, give dependable information as to the vestibular nerve involvement. The group of observations most consistently present in verified cases is an impaired cochlear function and a total loss of vestibular reactions to temperature on the side of the tumor, with a small impairment of the vestibular reactions in the face front position on the side opposite to the tumor. Unilateral deafness was present in all of five verified cases observed by the author. The impairment of hearing was moderate in two and marked in three. There was a greater loss of the vestibular function than of the cochlear function on the side of the tumor.

Medical Annals of District of Columbia, Washington

1: 149-176 (June) 1932

Cause of Heart Failure in Hyperthyroidism. W. M. Yater, Washington.—p. 149.
*New Early Diagnostic Sign of Acute Appendicitis. J. A. Cahill, Jr., Washington.—p. 151.
*Riedel's Thyroiditis: Report of Case. C. S. White, Washington.—p. 153.
*Perforation of Duodenal Ulcer Following Immoderate Drinking of Alcohol: Report of Three Cases. J. G. Lewis, Washington.—p. 155.
Treatment of Commoner Diseases of Foot. T. M. Foley, Washington.—p. 157.
Mortality in Appendicitis. J. P. Shearer, Washington.—p. 160.
Physiochemical Nature of Arsphenamines and Their Decomposition. G. B. Roth, Washington.—p. 165.

Acute Appendicitis.—According to Cahill, a definite gurgling, crackling or crepitant sensation or local borborygmus can be detected on palpation in the right lower quadrant of the abdomen in any inflammatory condition about the head of the cecum, particularly acute appendicitis. This sign appears early and must be found before definite rigidity of the right rectus muscle occurs. It is almost constant in the retrocecal or adherent types of acute appendicitis. It is of great aid and most valuable in the diagnosis of the atypical case and especially in acute appendicitis in children and young adults.

Riedel's Thyroiditis.—White calls attention to the fact that the woody thyroiditis of Riedel was described in 1896, and a total of forty-three cases has been reported. The etiology is unknown, but it can be stated that it bears no relation to tuberculosis or syphilis, and no infectious micro-organisms have been demonstrated. The pathologic changes are constant and are characterized by a large amount of fibrous tissue replacing the normal thyroid substance with giant cells frequently seen. It is not associated with hyperthyroidism or exophthalmos. Insufficient data concerning the basal metabolic rate have been obtainable to warrant any statement regarding it, but from the symptoms described one would assume that it is not greatly altered and, if anything, should be depressed. The clinical diagnosis of carcinoma of the thyroid is the commonest error and an excusable one; the chief difference is the nodular hardness in carcinoma and the smooth density of Riedel's struma. Surgical treatment should be directed only to the relief of pressure. In five postoperative deaths recorded, two were from carotid hemorrhage. In every case but one the patient was operated on. Spontaneous cures were probably more frequent than the literature indicates. The author reports a new case of this condition.

Perforation of Duodenal Ulcer.—Lewis reports three cases of perforated duodenal ulcer in young men, all seen within twenty-three days. In only one of the cases was there a history of previous digestive symptoms. The removed tissues in this case indicated that the condition was chronic. Pathologic changes in the other two cases were evidently more recent and, in one of them, definitely acute. A common factor was that each of the three patients had used alcoholic beverages immoderately. The patient whose ulcer was chronic was an habitual heavy drinker; the other two patients had been drinking heavily for from ten days to four weeks immediately before the perforation took place. The author suggests that alcohol may have precipitated the accident in all three cases.

Medical Journal and Record, New York

136: 1-44 (July 6) 1932

Infections, Acute and Chronic: Survey. J. M. Anderson, London, England.—p. 1.
Meningitis of Otitic Origin. W. L. Rhodes, Corpus Christi, Texas.—p. 5.
Brief Review of Modern Proctology, with Especial Reference to Treatment for Cancer of Rectum. M. J. Synnott, Montclair, N. J.—p. 7.
Fracture of Patella. H. D. Sonnenschein, New York.—p. 10.
Antique Dentistry Cannot Aid Modern Medicine. M. B. Lenley, New York.—p. 12.
Incandescent Bulb Ultraviolet. H. Goodman, New York.—p. 14.

Military Surgeon, Washington, D. C.

71: 123-211 (Aug.) 1932

Presentation of Plaque to Mexican Association of Military Surgeons. W. L. Hart.—p. 123.
A Lucubration on the Caduceus. F. H. Garrison.—p. 129.
Influence of Epidemic Diseases on Early History of Western Hemisphere. J. S. Simmons.—p. 133.
Mental and Physical Disabilities in Recruits: Causes for Discharge During Three-Year Period at Fort Slocum, N. Y. N. A. Myll and J. W. Schwartz.—p. 144.
Acute Intestinal Obstruction. R. W. Bliss.—p. 152.
Airplane Ambulance Evacuation. T. E. Darby.—p. 162.
Following Rainbows 'Round the World. H. W. Jones.—p. 172.

Minnesota Medicine, St. Paul

15: 509-566 (Aug.) 1932

Placement of Child Born Out of Wedlock: Is It an Exclusive Public Function? E. F. Waite, Minneapolis.—p. 509.
Angina Pectoris: Medical Treatment. H. L. Ulrich, Minneapolis.—p. 513.
More Fallacies in Treatment of Rectal Disease. H. E. Hullsiek, St. Paul.—p. 517.
Radical Sinus Exenteration in Pansinusitis. E. L. Armstrong, Duluth.—p. 520.
Lipiodol as Therapeutic Agent in Asthma. L. W. Fink, Minneapolis.—p. 522.
Follow-Up Study of Varicose Vein Injections. M. G. Gillespie and W. G. Strobel, Duluth.—p. 526.
Carcinoma of Female Breast: Early Diagnosis and Other Factors Affecting Prognosis. C. H. McKenzie, Minneapolis.—p. 528.
*Continuous Siphonage Treatment by Nasal Catheter for Postoperative Vomiting, Pain and Dehydration. A. E. Benjamin, Minneapolis.—p. 534.
Some Public Health Aspects of Parasites of Man. R. O. Christenson, Minneapolis.—p. 541.

Gastric Lavage Following Laparotomies.—Benjamin draws attention to the benefits to be obtained from frequent gastric lavage following laparotomies and urges its more

general adoption. A Levin tube (tube with a small catheter tip which can be easily passed through the nose) is passed through the nose into the stomach and the catheter attached to a tube connected with a bottle. Gases and toxic substances are at once extracted from the stomach and the patient soon begins to show the effects of the treatment. This method of avoiding gas accumulation and vomiting was first attempted by the author in 1924, in a patient with a perforated duodenal ulcer that could not be securely closed at the time of the operation. It was a simple method of siphonage whereby the gases and liquids could escape. In order to measure the amount of gas siphoned and the fluids assimilated, one must have a known amount of air and water in the suspended bottle and the tube in the floor bottle submerged beneath a known amount of water. The known loss of fluid in the suspended bottle subtracted from the amount siphoned into the bottle on the floor will give the amount extracted from the stomach. This, subtracted from the amount of fluid taken by mouth, determines the amount retained. These figures added for twenty-four hours will give the daily amount of fluid absorbed. The amount of gas removed is determined by measuring the amount of gas in the suspended bottle, subtracting therefrom the known air in the top of the suspended bottle at each filling of the bottle with water, and adding these figures for the daily output. It is essential that the apparatus be carefully watched to determine whether there is perfect suction or not, and to see that no particles of food remnants or mucus clog the small openings and lumen of the tube.

New England Journal of Medicine, Boston

207: 105-152 (July 21) 1932

*Erythroblastosis of the New-Born. S. H. Clifford and A. T. Hertig, Boston.—p. 105.
American Academy of Pediatrics, Its Purposes and Scope. J. L. Morse, Boston.—p. 113.
American Academy of Pediatrics: Program for State Committee. H. C. Stuart, Boston.—p. 114.
Can Fulminating Tracheobronchitis Be Cured? L. Richards, Boston. —p. 121.
Acute Intraspinal Epidural Abscess. W. J. Mixter and R. H. Smithwick, Boston.—p. 126.
Neisserian Medical Society of Massachusetts. E. T. Devine, New York. —p. 132.
Gonorrheal Vulvovaginitis: A Statement of the Problem. N. A. Nelson, Boston.—p. 135.
Id.: Point of View of Clinician. A. K. Paine, Boston.—p. 137.
Id.: Point of View of Institution. J. R. Hamilton, Boston.—p. 139.
Id.: Point of View of Children's Hospital and Pediatrician. H. C. Stuart, Boston.—p. 140.
Id.: Point of View of School Physician. S. H. Rubin, Boston.—p. 142.

Erythroblastosis of the New-Born.—According to Clifford and Hertig, erythroblastosis is a congenital and frequently familial disease of unknown etiology involving the hematopoietic system. It runs the major portion of its course prior to birth and presents a confusing variety of clinical pictures, depending on the severity of the antenatal process and on the stage the disease has reached when pregnancy is terminated. The term "erythroblastosis" is descriptive of the common underlying pathologic condition, recognized in such apparently dissimilar neonatal conditions as congenital hydrops and some cases of icterus gravis. The pathologic feature of congenital erythroblastosis is hyperplasia of the hematopoietic system with reversion to or continuation of the embryonic level of blood formation. There is hyperplasia of the bone marrow, and active foci of hematopoiesis may be found in the liver, spleen, pancreas, kidneys, suprarenals, thymus, pituitary and lymph nodes. The circulating blood is flooded with immature cells of all forms, particularly nucleated red cells, and there is evidence of a varying amount of blood destruction. When the destruction of the red cells exceeds the production, any degree of anemia may result up to the profound type often seen in the congenital hydrops variety of the disease. In what should seem to be a compensatory measure the heart may become greatly hypertrophied, and the anasarca when present may be the result of cardiac decompensation. The diagnosis of erythroblastosis is suggested at birth by the presence of a thick golden-yellow vernix caseosa. The placenta may be hypertrophied. Physical examination may reveal anemia, edema, jaundice, dusky cyanosis, petechial hemorrhages, and enlargement of the liver, spleen and heart. The blood in erythroblastosis will have an abnormal increase in the numbers of nucleated red cells. The treatment consists in transfusion with whole blood at the earliest possible moment, and the forcing of fluids.

New Jersey Medical Society Journal, Orange

29: 533-616 (July) 1932

Presidential Address. J. F. Hagerty, Newark.—p. 533.
Some Factors in State Medicine. H. S. Baketel, Jersey City.—p. 538.
Medicolegal Aspects of Disease Aggravated by Trauma. M. Kummel, Newark.—p. 546.
Roentgen-Ray Consideration of Colon. Louise J. Gelber, Newark.—p. 551.
Correction of Unilateral Facial Paralysis. J. E. Sheehan, New York. —p. 556.
Congenital Cysts of Liver. O. K. Parry, Asbury Park.—p. 560.
County as Unit for Public Health Service. J. W. Mountin, Washington, D. C.—p. 560.
Early Symptoms of Congenital Dislocation of Hip Joint. W. G. Doran, Jersey City.—p. 564.
Pathogenesis and Treatment of Pelvic Inflammatory Disease. R. A. Mackenzie, Long Branch.—p. 569.
Importance of Proper Maternity Care. F. D. Fahrenbruch, Mount Holly.—p. 573.
Present Status of Female Sex Hormone Therapy. J. C. Hirst, Philadelphia.—p. 574.
Treatment of Late Toxemias of Pregnancy. E. G. Waters, Jersey City. —p. 576.

Oklahoma State Medical Assn. Journal, Muskogee

25: 277-322 (July) 1932

Some Recent Advances in Treatment of Pulmonary Tuberculosis. R. M. Shepard, Tulsa.—p. 277.
Vocational Rehabilitation of Tuberculous Patients. F. P. Baker, Talihina.—p. 280.
Artificial Pneumothorax in Pulmonary Tuberculosis, with Especial Reference to Cauterization of Adhesions. L. J. Moorman, Oklahoma City. —p. 286.
Blood Study as Aid in Diagnosis, Prognosis and Treatment of Pulmonary Tuberculosis. J. J. Gable and B. H. Cooley, Norman.—p. 290.
Foreign Body in Larynx: Case Report. A. H. Davis, Tulsa.—p. 292.
Botanic and Pollen Survey of Tulsa County and Surrounding Territory. E. R. Denny and G. E. Tenny, Tulsa.—p. 293.
Allergy as It Appears in United States Army. S. W. French, Fort Sam Houston, Texas.—p. 296.
Treatment of Hemophilia with Theelin. C. E. White, Muskogee.—p. 304.
Allergic Diseases: An Historical Sketch. R. M. Balyeat, Oklahoma City.—p. 305.

Psychiatric Quarterly, Albany, N. Y.

6: 403-574 (July) 1932

Future of Medicine. J. Collins, New York.—p. 403.
Next Steps in a Mental Health Campaign. S. Brown 2d, New York. —p. 411.
State Research Program in Mental Hygiene. H. M. Pollock.—p. 417.
Ophthalmo-Encephalo-Myelopathy. S. E. Barrera, New York.—p. 421.
Bilateral Suprarenal Hemorrhage as a Cause of Sudden Death in Epilepsy. L. A. Damon, Sonyea, N. Y.—p. 438.
Transfusions in Treatment of Malaria. R. G. Reed, Central Islip, N. Y.—p. 441.
Report on Types of Cases Referred to Child Guidance Clinics of Central Islip State Hospital. F. Rosenheim, Central Islip, N. Y. —p. 444.
Catatonic Syndrome in Dementia Praecox. L. E. Hinsie, New York. —p. 457.
Clinical Manifestations of Catatonic Form of Dementia Praecox. L. E. Hinsie, New York.—p. 469.
Prognosis in Schizophrenia: Catatonic Form. C. H. Bellinger, Utica, N. Y.—p. 475.
Thought Content in Catatonic Dementia Praecox. R. D. Helmer, Utica, N. Y.—p. 488.
Study of Personality in Persons Developing Catatonic Dementia Praecox. H. E. Faver, Newark, N. J.—p. 500.
Thought Content in Catatonic Dementia Praecox. S. C. Wolff, Poughkeepsie, N. Y.—p. 504.
Observations in Catatonia with Mixtures of Carbon Dioxide and Oxygen. H. Kelman, Kinep Park, N. Y.—p. 513.
Clinical Application of Psychometric Tests. Blanche Minogue Camp, Thiells, N. Y.—p. 523.
Legislative Aspects of Mental Hygiene. F. L. Patry, Albany, N. Y. —p. 529.
Statistical Review of Occupational Therapy in New York Civil State Hospitals for Fiscal Year Ended June 30, 1931. H. M. Pollock and Gertrude M. Mack.—p. 535.

Public Health Reports, Washington, D. C.

47: 1553-1600 (July 22) 1932

*Postvaccination Encephalitis, with Especial Reference to Prevention. C. Armstrong.—p. 1553.

Postvaccination Encephalitis.—Armstrong calls attention to the fact that the only practicable means so far suggested for preventing the encephalitis occasionally noted following

smallpox vaccination have to do with the vaccination procedure. A suitable vaccination technic is defined as one employing a small superficial insertion, never more than one-eighth inch (0.3 cm.) in greatest diameter, and no routine dressing. Infancy is the best time for performing primary vaccinations, so far as the prevention of postvaccination encephalitis is concerned. Evidence is presented which suggests that inoculation with diphtheria toxoid tends to render mice somewhat more resistant to vaccine virus subsequently administered intracerebrally. It is suggested that primary vaccinations, especially after the first year of life, be deferred until contemplated immunization against diphtheria or other diseases by means of inanimate antigens has been accomplished. The hope is expressed that a recent preliminary exercise or mobilization of the immunity or defense forces may lead to a more efficient anti-vaccine-virus response, with the result that the ensuing reaction may tend to simulate primary infant or secondary vaccinations in their comparative mildness and freedom from postvaccination encephalitis. The suggestion is made that possibly the high percentage of poliomyelitis cases recorded among diphtheria-susceptible children in New York in 1916 may be due in part to an increased resistance to poliomyelitis among children immune to diphtheria.

South Carolina Medical Assn. Journal, Greenville

28: 177-198 (July) 1932

Antepartum Hemorrhage. W. C. Hearin, Greenville.—p. 179.
Toxemia of Pregnancy. L. A. Wilson, Charleston.—p. 183.
Treatment of Some Common Abnormal Presentations. R. E. Seibels, Columbia.—p. 185.

Southern Surgeon, Atlanta, Ga.

1: 89-172 (July) 1932

Implications of the M.D. Degree. C. J. Miller, New Orleans.—p. 89.
Davis Method of Prostatic Resection. T. M. Davis, Greenville, S. C. —p. 97.
*Vaginal Hysterectomy. W. W. Babcock, Philadelphia.—p. 103.
Diagnosis of Surgical Affections of Kidney and Ureter. E. G. Ballenger, O. F. Elder and H. P. McDonald, Atlanta, Ga.—p. 109.
*Diagnosis and Management of Peptic Ulcer. J. S. Horsley, Richmond, Va.—p. 116.
Focal Infection and Its Relation to General Systemic Disease. J. F. Barnhill, Indianapolis.—p. 125.
Effects of Pregnancy on Tetania Parathyreopriva. L. Guerry and E. Zemp, Columbia, S. C.—p. 127.
"The Surgical Knee." J. J. Moorhead, New York.—p. 131.
Pathologic Lesions Associated with Duodenal Ulcer in Germany and in the United States. W. Walters, Rochester, Minn.—p. 141.
Diagnosis and Surgical Treatment of Common Chest Conditions. H. Lilienthal, New York.—p. 144.
The Kinetic System and Its Control. G. W. Crile, Cleveland.—p. 157.
Types of Contour Repair. V. P. Blair, St. Louis.—p. 162.

Vaginal Hysterectomy.—Babcock enumerates the advantages of vaginal hysterectomy thus: 1. Clamps are not used: the sloughing, the odorous discharge, the tendency to hemorrhage which follow the use of clamps are largely obviated. 2. Individual ligations are used. The mass ligation of the broad ligaments, unless very carefully made, is dangerous from the tendency of the arteries to retract from within the pedicle and to bleed. 3. The lateral uterine attachments are separated as the first part of the operation, giving an early mobilization of the organ. 4. No special attempt is made, as is customary, to separate the bladder or to locate the peritoneum in the anterior or posterior culdesac. As the uterus is progressively liberated from its lateral supports, it descends, and the peritoneal folds readily come into view without being sought. The anterior culdesac is entered rather late in the operation. Thus there is little danger of injurying the bladder or ureters. 5. The removal of a large fibroid uterus through a small vagina is often a tedious operation with much morcellation, yet it is usually well borne by the patient. An important underlying principle is not to attempt to expose at one time a larger field than is required for the particular step of the operation. 6. With a virginal, nulliparous or atrophic vagina, a division of the vaginal wall is at times necessary. A shallow median posterior incision, of the episiotomy type, dividing the lower half of the vagina and extending but a short distance into the peritoneum, usually suffices. 7. Owing to the slight tendency to peritoneal infection or shock, vaginal hysterectomy has a lower mortality than supravaginal hysterectomy and a distinctly lower mortality than a complete abdominal hysterectomy. In the treatment of hemorrhagic conditions of the uterus in middle-aged women, it gives a mortality about as low as that of radium, without the sequelae and relapses of the latter and with greater assurance of disclosing and eliminating a possible malignant condition. 8. Associated with the hysterectomy it is possible to do a radical or conservative operation on the appendages and occasionally to remove a diseased appendix through the vagina, as well as to do an associated vaginoplastic operation. 9. Vaginal hysterectomy is the operation of choice, if hysterectomy is required in the presence of hemorrhage or infection. Hemorrhage during operation is better borne by the patient subjected to vaginal than to abdominal hysterectomy. 10. Adhesions producing symptoms may occur after vaginal hysterectomy but probably less frequently than after abdominal hysterectomy.

Diagnosis and Management of Peptic Ulcer.—Horsley states that the cardinal symptom of a typical case of peptic ulcer is supposed to be pain, relieved by food, sodium bicarbonate or vomiting, coming on at regular intervals after meals and usually accentuated in the spring and fall. With this may occur hemorrhage, manifested either by the vomiting of blood or by the passage of tarry stools, or both. A combination of these two symptoms of hunger-pain and hemorrhage would justify a diagnosis of peptic ulcer in the vast majority of cases. There are, however, occasional cases of peptic ulcer in which the diagnosis is puzzling. Symptoms may occur as vague pains in the abdomen coming on at irregular times, with no relation to food, and sometimes referred chiefly to the lower part of the abdomen. There is often a tendency toward diarrhea, with poor appetite and loss in weight. Such symptoms may be combined in any manner, though hunger-pain and hemorrhage will be the most frequent. Besides these symptoms, the location of the ulcer will also have much to do with the symptoms that it produces. A perforation in the posterior wall of the duodenum may cause fluids to gravitate retroperitoneally and produce symptoms of kidney colic or appendicitis, with but little or no pain in the upper abdomen. Peptic ulcer may also be found in the esophagus, especially its lower portion, apparently caused by regurgitation of the acid contents of the stomach into the esophagus. The chief symptom of this lesion is almost constant pain in the epigastrium about the ensiform cartilage and beneath the sternum. It often radiates toward the back and between the shoulder blades, and over the chest. There is always difficulty in swallowing. At first it may be noticed only in taking solids, but later even in swallowing liquids. Vomiting occurs in more than half of the cases, produced first by spasm and later by stricture. Regurgitation of food is more frequent than vomiting. Sometimes there is bleeding, and perforation, occurring in about 14 per cent, is usually fatal. Roentgen examination and esophagoscopy are often helpful in the diagnosis. It must be distinguished from cardiospasm and cancer, and from peptic ulcer in the stomach and duodenum. One of the chief differential points is the more or less constant pain, accentuated by swallowing. The symptoms of peptic ulcer anywhere are usually accentuated by taking rough food. There is doubtless a large number of cases of gastric or duodenal peptic ulcer without any marked symptoms. So much of the stomach area is practically silent so far as symptoms from a lesion are concerned that ulcer or tumors may reach advanced stages before producing symptoms, unless there is hemorrhage, perforation or constriction. Many roentgenologists believe that, when any ulcer in the greater curvature of the stomach is sufficiently advanced to be well demonstrated by careful roentgenologic examination, in the vast majority of cases it is cancerous.

Southwestern Medicine, Phoenix, Ariz.

16: 274-312 (July) 1932

Urethral Methods for Relief of Prostatic Obstruction: History and Present Status. D. M. Davis, Phoenix, Ariz.—p. 274.
Heart Murmurs. W. P. Holbrook, Tucson, Ariz.—p. 276.
Delayed Traumatic Subdural Bleeding: Case Reports. D. G. Dickerson, Seattle.—p. 279.
Spinal Anesthesia. E. W. Adamson, Douglas, Ariz.—p. 286.
Traumatic Rupture of Normal Spleen; Delayed Splenectomy: Recovery. W. L. Reid, Phoenix, Ariz.—p. 292.
Treatment of Acute Spontaneous Pneumothorax. H. Randolph, Phoenix, Ariz.—p. 296.
Intravenous Urography. C. N. Ploussard, Phoenix, Ariz.—p. 299.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

44: 357-416 (July) 1932

Folliculitis Ulerythematosa Reticulata: Report of Case. N. Burgess. p. 357.
*Erysipeloid: An Occupational Disease. T. H. B. Bedford.—p. 368.

Erysipeloid: An Occupational Disease. — According to Bedford, once a case of erysipeloid has been recognized the diagnosis in the future presents no difficulty. Most general practitioners of experience are familiar with the disease, although it is not often known to them by a specific name and they are unaware of the true nature of the condition. The absence of any febrile disturbance serves at once to distinguish erysipeloid from true erysipelas. Deep-seated sepsis of the finger or palm may for a time occasion some difficulty of diagnosis, but the subjective symptoms are here far different from those accompanying erysipeloid. Perhaps the most characteristic feature of erysipeloid is the peculiar bluish red coloration of the active areas of the disease. This is simulated by no other condition affecting the hand, and it alone is almost diagnostic of the disease.

British Journal of Ophthalmology, London

16: 385-448 (July) 1932

*Uniocular Zonular Cataract. F. W. Law.—p. 385.
Glioma of Optic Nerve. B. Cluck.—p. 406.
Papilloma of Lacrimal Sac. R. B. Hird.—p. 416.
Retinitis Pigmentosa and Retinitis Punctata Albescens. J. G. Milner. —p. 418.
Twins with Eye Defects: Ametropia and Strabismus. J. A. Wilson. —p. 421.
Suggestion as to Cause of Glaucoma Following Thrombosis of Retinal Vein. D. J. Wood.—p. 423.

Uniocular Zonular Cataract.—Law believes that the cause of a uniocular zonular cataract is trauma, almost invariably of the nonpenetrating variety. The injury is of such a kind as to cause a tendency toward dislocation of the lens; in quite half the cases, dislocation actually occurs. The cause of the zonules or lamellae of opacity is a temporary disturbance of the nutrition of the lens, brought about most probably by a severance of physiologic connection between lens and capsule, with a consequent alteration in the capsular permeability. The recorded cases support the view that such a type of opacity is more likely to occur in a young, actively growing lens than in an adult lens. While it might be suggested that inflammation is an alternative cause of a zonular opacity, the immediate cause presumably being a chemical or toxic action by the nutrient fluids, such a suggestion finds no support in the author's investigation.

British Journal of Radiology, London

5: 545-608 (July) 1932

Reaction of Allantoic Membrane of Chick to Roentgen Radiation. W. Moppett.—p. 556.
The Future of the Radiographer. C. Andrews.—p. 570.
Radiation Therapy in Carcinoma of Cervix Uteri in India. Subdh Mitra.—p. 581.
Prehistoric Bones. A. P. Bertwistle.—p. 589.

British Medical Journal, London

2: 43-86 (July 9) 1932

An Address on Scope and Needs of Medical Research. W. Fletcher. —p. 43.
*Cancer of Breast: Roentgen-Ray and Radium Treatment of Operable and Borderline Cases. J. H. D. Webster.—p. 47.
*Allergic Conditions of Nose. J. A. Jones.—p. 50.
*Progress of Insulin Diabetics on a Liberal Carbohydrate Diet. C. S. D. Don.—p. 52.
Bone Abscesses Due to Brucella Melitensis. A. D. Gardner, G. R. Girdleston and N. A. Gillespie.—p. 53.
Abdominal Nephrectomy for Ruptured Kidney: Notes of Three Cases. H. Dodd.—p. 54.
Case of Acute Glanders. S. G. Rainsford.—p. 55.

Cancer of Breast.—Webster states that as an alternative to operation in selected cases of operable and borderline breast cancer the tumor may be treated with roentgen rays or radium, or both. Fifteen cases reported by him six years ago have now grown to forty-one. In most of these the patients had refused operation, or were considered unsuitable subjects for it. But not many were strictly "operable," the majority, indeed, being "inoperable" owing to extreme age, debility, or cardiac or pulmonary disease, or the breast itself being in a "borderline" stage, or too advanced for operation as judged by strict standards. The good results of operable and borderline patients followed up for five years are almost similar for those treated with roentgen rays and external radium—namely, 70 per cent for those with roentgen rays, and 60 per cent with radium (66 per cent as a whole), ten out of fifteen cases in all. Almost every patient in the series showed at one time or other, apart from definite breast signs, either skin nodules or axillary or supraclavicular lymph node enlargement. No patient failed to show at least temporary local improvement. In many patients the result has been clinical regression of the primary mass to a small "residue," while in some patients the mass has disappeared. Many of these residues, watched at intervals of three months for months or years, have remained quiescent. In a few instances there has been increase in size of a residue, which has necessitated further treatment by radiation or operation, or both. The author points out that care should be taken not to damage the skin severely, especially if it is infolded, as fissures which readily become septic may result, and the inflammatory process, spreading to the residue behind, has appeared in one or two instances to have stimulated this residue to activity years after apparent quiescence. Early local mastectomy is to be advised in such instances.

Allergic Conditions of Nose.—Jones says that up to a few years ago those nasal conditions which have been termed "vasomotor rhinitis," "spasmodic rhinitis," "paroxysmal rhinorrhea," "hay fever," and so on, were grouped under the heading of "nasal neuroses." Similarly, certain symptoms which were attributable to the lingual tonsil were also classified as neuroses. These conditions are now regarded as allergic and are closely allied to asthma, urticaria, angioneurotic edema, and the like. If these allergic conditions are accompanied by other nasal pathologic manifestations, they should be suitably dealt with. Occasionally an enlarged middle turbinal will be found pressing against the septum; or, more rarely, the tubercle of the septum will be so large as to form a small tumor on the septum. In these cases, surgical intervention is called for. It is the author's practice in treating these nasal allergic conditions to combine local and general treatment. In all cases he prescribes the use, two or three times daily, of an oily nasal spray, and also parathyroid and calcium tablets in doses suitable to the age of the patient. If the intranasal appearances are fairly normal, he awaits the result of this treatment for two or three months. If any marked intranasal abnormalities are present, they are dealt with at once. If the tubercle of the septum is prominent, or if the inferior turbinals are enlarged, he proceeds to cauterize at once. At the end of two or three months, if no improvement has taken place, he uses the electrocautery to the sensitive areas and changes over from the parathyroid and calcium treatment to suprarenal and pituitary.

Insulin Diabetic Persons on Carbohydrate Diet.—Don reports that the insulin requirements in sixty-one cases of diabetes observed from two to six years on a liberal carbohydrate diet show that the dose had to be reduced in seventeen and increased in twenty, while in twenty-four no change was necessary. It was possible to stop insulin in 19 out of 171 cases but it had to be restarted in 8. In only one case seen in the clinic was it possible to stop insulin and return to an unrestricted diet. This patient was developing cirrhosis of the liver. The blood pressure of treated patients showed an increase above a systolic pressure of 150 mm. or a diastolic of 100 mm. of mercury in thirty-two out of sixty who have been on insulin for an average period of three years. Insulin reactions occurred occasionally, but they rarely gave rise to serious results.

International Journal of Psycho-Analysis, London

13: 277-404 (July) 1932

Libidinal Types. S. Freud.—p. 277.
Female Sexuality. S. Freud.—p. 281.
Etiology of Drug Addiction. E. Glover.—p. 298.
Note on Depersonalization. M. N. Searl.—p. 329.
Dread of Woman: Observations on Specific Difference in Dread Felt by Men and by Women Respectively for Opposite Sex. Karen Horney.—p. 348.
Contribution to Problem of Libidinal Development of Genital Phase in Girls. Jósine Müller.—p. 361.

Journal of Anatomy, London

66: 437-681 (July) 1932

Observations on Cell Masses in Cerebral Hemisphere of New Zealand Kiwi (Apteryx Australis). A. Durward.—p. 437.
Nature of Certain Macroscopic Staining Reactions of Brain. D. M. Blair, F. Davies and E. W. McClelland.—p. 478.
Preparation of Dry Specimens by Paraffin-Naphthalene Impregnation. D. M. Blair, F. Davies and E. W. McClelland.—p. 486.
Sympathetic Elements in Cranial and Spinal Ganglions. F. Kiss.—p. 488.
Observations on Distribution of Arterial Branches of Peripheral Nerves. A. E. Coates.—p. 499.
Morphology of Sternum and Its Relation to Ribs. R. J. Gladstone and C. P. G. Wakeley.—p. 508.
Studies in Achondroplasia. E. W. A. H. Jones.—p. 565.
Laws of Muscle and Tendon Growth. R. W. Haines.—p. 578.
Early Development of Ferret: Zona Granulosa, Zona Pellucida and Associated Structures. D. Mainland.—p. 586.
Further Notes on Arrangement of Collagen Fibers of Veins, Together with Certain Other Observations on Veins, and on Venous Return. K. J. Franklin.—p. 602.
*Vascularity of Valves of Human Heart. D. R. Dow and W. F. Harper.—p. 610.
Note on Occurrence and Nature of Pigment in Pars Nervosa of Human Hypophysis. Ruby O. Stern.—p. 618.
Nerve Endings in Human Teeth. O. W. Tiegs.—p. 622.
Histology of Spleen and Suprarenals of Echidna. M. A. Basir.—p. 628.
Concerning Nasal Apertures, Lacrimal Canal and Buccopharyngeal Upper Lip. E. P. Allis, Jr.—p. 650.
Preoral Gut, Buccal Cavity and Buccopharyngeal Opening in Ceratodus. E. P. Allis, Jr.—p. 659.

Vascularity of Valves of Human Heart.—In an examination of forty human hearts normal to inspection and without a clinical history of heart disease, Dow and Harper found blood vessels in the atrioventricular valves, but they did not extend into them for more than 3 mm. from the line of attachment of the valve to the heart wall. Vessels were more frequently present in the tricuspid and mitral valves in persons under 10 years of age than in those past this decade and were always associated with an extension of auricular muscle into the cusp. Islands of muscle in cusps are not common and the authors did not find muscle in them continuous with chordae tendineae nor did they observe transverse muscle fibers in them. Blood vessels observed in three cases of endocarditis are regarded by the authors as of the nature of a new formation. From an examination of the cases at their disposal they do not consider that persistence of muscle in the valves of adult hearts plays any part in the development of embolic endocarditis, for the muscle does not extend into the cusp so far as the line of closure of the valves; i. e., to the part where valvular endocarditis begins.

Journal of Hygiene, London

32: 301-462 (July) 1932

Combining Affinities in Bacterial Variation and Carcinogenesis. A. Eastwood.—p. 301.
Physiologic Response to Breathing Hot Air. Esther M. Killick.—p. 332.
Estimation of Proteins by Precipitation Reaction. G. L. Taylor, G. S. Adair and Muriel E. Adair.—p. 340.
Evidence of Brucella Abortus Infection in Slaughterhouse Men. J. H. Dible and Margaret Pownall.—p. 349.
*Brucella Abortus in Milk. J. Smith.—p. 354.
Disinfection of Anthrax-Infected Dried Hides in Dry Condition by Means of Hydrogen Sulphide. Madge E. Robertson.—p. 367.
Experiences with Small-Flaking or Granular Agglutination in Normal, Inoculated and Enteric Fever Cases. J. Wyllie.—p. 375.
Bacterial Synergism: Formation by B. Typhosus or B. Coli Anaerogenes from Mannitol of an Intermediate Substance from Which Morgan's Bacillus Produces Gas. J. G. Graham.—p. 385.
Problem of the Seasonal Prevalence of Plague. L. Otten.—p. 396.
Hemoglobin Concentration of Workers Connected with Internal Combustion Engines. C. E. Jenkins.—p. 406.
Toxicity of Ethylene Oxide. W. J. G. Walker and C. E. Greeson.—p. 409.
Water-Borne Epidemic of Typhoid Fever. J. Ritchie and E. Armstrong.—p. 417.
Influence of Humidity of Air on Capacity for Work at High Temperatures. H. M. Vernon and C. G. Warner.—p. 431.

Brucella Abortus in Milk.—Smith reports that an investigation into the incidence of Brucella abortus and tubercle bacilli in milk showed Brucella abortus to be present in 79, or 28.3 per cent, of 279 different specimens of raw milk, and B. tuberculosis in 29, or 10.3 per cent, of the same samples. In a total of 379 samples collected from eight pasteurizing plants, 36, or 9.4 per cent, were found to contain Brucella abortus, and 23, or 6 per cent, tubercle bacilli. From 187 samples treated by "holding" pasteurization at 145 F. for thirty minutes, Brucella abortus was not obtained, but 4, or 2.1 per cent, of the samples showed the presence of tubercle bacilli. From 192 samples treated by "flash" pasteurization, 36, or 18.7 per cent, were found to contain Brucella abortus, while 19, or 9.8 per cent, contained tubercle bacilli. No normal agglutinins for Brucella abortus were found in the serums of 98 noninfected guinea-pigs when tested in dilutions ranging from 1:25 to 1:1,600. The guinea-pig infections with Brucella abortus were analyzed, the serum agglutination and cultural tests being compared, and the results suggest that the actual total incidence of Brucella abortus in milk is underestimated by the guinea-pig inoculation method.

Journal of Laryngology and Otology, Edinburgh

47: 449-516 (July) 1932

Some Observations on the Tonsil and Adenoid Operation in Children. J. A. Keen.—p. 449.
*Operative Closure of Oromaxillary Fistula. D. Guthrie.—p. 459.

Operative Closure of Oromaxillary Fistula.—Guthrie defines oromaxillary fistula as an opening persisting between the maxillary sinus and the mouth, after tooth extraction or after operation on the sinus. The term "oromaxillary fistula" is more correct than "antrobuccal fistula," although the latter appears frequently in the scanty literature on the subject. The condition is not rare, and as it is a source of great annoyance to the patient and is often difficult to treat, it deserves greater attention than it has heretofore received from laryngologists. The inadvertent removal of part of the floor of the sinus during extraction of an upper molar tooth is perhaps the most frequent cause. Naturally the accident is more likely to occur when there is little or no bone between the roots of the teeth and the floor of the maxillary sinus. As a rule the opening soon closes, but if the sinus becomes infected the fistula may persist, even after free intranasal drainage has been provided. Less frequently, oromaxillary fistula may follow radical operation on the sinus, or on a dental cyst which involves the sinus. In four cases treated by the author, fluid tended to escape from the nose, and in one case speech was accompanied by a hissing sound. Conservative treatment is of little value, and the wearing of a dental plate with an obturator to occlude the fistula is uncomfortable and inefficient. Curettage only makes the fistula larger, and the removal of more bone, so as to convert the tunnel of the fistula into a trench, was unsuccessful in one of the author's cases. Perhaps the best operation is that described by Axhausen, and it is applicable whether the fistula involves the canine fossa or the alveolus. A flap of mucous membrane is taken from the fornix, and it must be cut so deep as to include a thin layer of buccinator muscle. After excising the fistula and inverting its lining mucosa, one stitches the flap over the raw area. The author has applied the Axhausen method successfully in three cases during the past year.

Jour. Obst. and Gynec. of Brit. Empire, Manchester

39: 227-470 (Summer) 1932

*Some Reflections on Treatment of Placenta Praevia. E. Essen-Möller.—p. 227.
Pathology of Ovarian Tumors. W. Shaw.—p. 234.
*Anemias of Pregnancy. L. E. H. Whitby.—p. 267.
*Pernicious Anemia and Pregnancy. J. F. Wilkinson.—p. 293.
Classification of Late Pregnancy Toxemia. J. Young.—p. 310.
Thymophysin. F. Roques.—p. 320.
Treatment of Albuminuria of Pregnancy. S. J. Cameron and H. Thomson.—p. 343.
Morbidly Adherent Placenta. Margaret Salmond.—p. 346.
Pregnancy Complicated by Heart Disease. H. I. McClure.—p. 357.
Case of Retroflexion of Full-Time Gravid Uterus. C. Oldfield.—p. 362.

Treatment of Placenta Praevia.—Essen-Möller considers the introduction of cesarean section in cases of placenta praevia as a new and important contribution. Time will settle the question, but this may be said: The place of cesarean section in the treatment of placenta praevia seems by this time to be indisputable. The general practitioner, in the future as heretofore, will have recourse to version and similar methods, but the obstetricians in well equipped hospitals undoubtedly have to consider cesarean section more often than in the past. Another important change in the conception of the treatment of placenta praevia seems to be the necessity of transferring these patients to hospitals. Placenta praevia ought not to be dealt with in the patient's home; it is too dangerous for both mother and child.

Anemias of Pregnancy.—Whitby calls attention to the fact that anemia in pregnancy is common. In temperate climates the severe forms are rare. Severe anemia of pregnancy is not identical with addisonian pernicious anemia, though the hematologic picture is somewhat similar in many of the pregnancy anemias. The hematologic picture may be "pernicious" (plastic or hypoplastic) or iron deficient in type, or a combination of the two. The hypoplastic type is probably due to bone marrow hypoplasia caused initially by a chronic anemia-producing condition, which is intensified by the pregnancy and results in an anemic breakdown. The chlorotic type is due to iron deficiency intensified by the pregnancy. The plastic type is due to failure to produce or utilize the hematinic factor; it may eventually become hypoplastic. Pregnancy anemias become most severe between the sixth and eighth months. Simple hematologic examinations are recommended as a routine antenatal procedure at this period of pregnancy. Pregnancy anemia may not manifest itself by definite clinical symptoms until after delivery. The hypoplastic type, and probably the plastic also, is progressive from one pregnancy to another. Sooner or later the bone marrow hypoplasia becomes so marked that recovery is tedious and difficult. The iron deficient type is not necessarily progressive and is more easily recovered from. Transfusion allows rest to the bone marrow or supplies some factor and is the key treatment for the hypoplastic type. Liver and iron should usually be used as adjuvants and not to replace transfusion. Transfusion should accompany all operative procedures. Iron, with or without liver, will usually cure the iron deficient type. Liver alone will often alleviate the plastic type until after delivery, whereupon recovery occurs. Cases of severe anemia of pregnancy can, with careful supervision, be allowed to go to term, or near enough to give a chance of a living child. In the hypoplastic type, further pregnancies should usually be avoided or prevented. The ultimate prognosis for recognized cases of the hypoplastic type is quite good, but complete recovery may take a long time.

Pernicious Anemia and Pregnancy.—Wilkinson describes several cases of true primary pernicious anemia in association with, but not due to, pregnancy. The patients have been under observation and treatment for several years and have kept in normal health. One patient with familial achlorhydria (and related to a patient with pernicious anemia) and two with latent pernicious anemia have been observed to develop frank primary pernicious anemia as a result of the gravid state. Two cases of "pernicious" anemia of pregnancy are described. The patients had typical blood counts for a primary anemia but had normal gastric secretions. Both were cured by suitable treatment, and relapses have not occurred following discontinuance of this, although subsequent pregnancies have been observed in one of them. The author calls attention to the fact that a rapid and suitable form of treatment for both forms of pernicious anemia consists of the administration of 1 ounce (30 Gm.) daily of desiccated hog's stomach. Patients with true primary pernicious anemia must continue this treatment indefinitely on adequate maintenance doses; patients with "pernicious" anemia of pregnancy are able to discontinue it after the blood count has returned to normal. A rapid and safe method of treating extremely severe pernicious anemia associated with pregnancy, with highly potent liver preparations intravenously, is described; it is particularly applicable when autohemagglutination is present. Relapses have not occurred during pregnancy in a series of three women receiving adequate treatment for primary pernicious anemia. This suggests that pregnancy can therefore be permitted in such women with pernicious anemia, provided suitable treatment is continued throughout.

Lancet, London

2: 111-164 (July 16) 1932

*Extrinsic (Deficiency) Factor in Pernicious and Related Anemias. M. B. Strauss and W. B. Castle.—p. 111.
Nonspecific Therapy in Mental Disorder. T. C. Graves.—p. 115.
*An Alternative to Prostatectomy. E. C. Ryall and T. Millin.—p. 121.
Use of Nembutal in Psychiatry. D. Curran and L. Minski.—p. 126.

Extrinsic Factor in Pernicious Anemia.—Strauss and Castle state that the extrinsic factor essential for the specific reaction with the intrinsic factor of normal human gastric juice in the production of hematopoiesis in pernicious anemia may now be defined as a substance closely related to vitamin B_2, if not vitamin B_2 itself. They therefore suggest as a working hypothesis that addisonian pernicious anemia, and the macrocytic anemia of the tropics, of sprue, and of celiac disease are due, in common, to the lack of a specific hematopoietic reaction between an extrinsic factor (vitamin B_2) and an intrinsic factor of the normal human gastric juice. In addisonian pernicious anemia and in certain cases of sprue, as well as in all probability in a certain proportion of all cases of the macrocytic anemia of the tropics, the specific reaction is absent mainly because of a lack of the intrinsic factor. In those cases of sprue, of macrocytic anemia of the tropics, and of celiac disease which respond to the administration of yeast, the specific reaction is absent, mainly because of a lack of the extrinsic factor. The incubation of hog stomach mucosa with yeast concentrates is suggested as a method for economically preparing hematopoietic substances for use in pernicious anemia.

An Alternative to Prostatectomy.—Ryall and Millin call attention to the fact that urologic surgeons have at last a satisfactory perurethral method available for the relief of a great number if not the majority of prostatic obstructions. In competent hands the risk is minimal, the complications few and the convalescence rapid. The technic is not simple nor is the method one for the occasional cystoscopist. Intimate knowledge of the endoscopic appearances of the posterior urethra and bladder neck is essential no less than the potentialities of the modern endothermy cutting current. Skilfully applied, however, cystoscopic resection of the obstructing prostate is a procedure of the greatest value and deserves to supplant open operation in many cases.

Medical Journal of Australia, Sydney

1: 877-908 (June 25) 1932

Toxic Goiter. J. Smith.—p. 877.
Diathermy in Treatment of General Paralysis of Insane. G. P. U. Prior.—p. 882.
*Study of Feet of New-Born Infants. H. A. Sweetapple.—p. 892.

Study of Feet of Infants.—Sweetapple examined the feet on 1,000 new-born infants. Of the feet examined 40.4 per cent occupied, at rest, positions which would be deformities if they persisted. Eighteen examples of metatarsus varus were seen. Four other examples of deformity were seen—three of talipes equinovarus and one of talipes varus. The relative frequency of the various positions at rest in this series bears no relation to the relative frequency of the various forms of congenital talipes. The investigation supports the "endogenous disturbance" theory of the etiology of congenital foot deformities. The developmental imbalance that causes clubfoot can continue after birth. Feet that possess a fixed deformity at birth can, without treatment, become normal after birth. The infant's foot is capable of much greater range of movement than that of the adult. Feet possessing a deficient range of movement at birth can acquire the normal range after birth.

South African Medical Assn. Journal, Cape Town

6: 389-418 (June 25) 1932

Recent Advances in Treatment of Chronic Diseases of Lungs and Pleura. L. I. Braun.—p. 391.
Subtrochanteric Fractures of Femur. R. S. Verster.—p. 398.
Early Diagnosis of Malignant Diseases of Stomach and Colon. S. N. Sennett.—p. 400.
*Effects of Toad Venom on Eye. D. Epstein.—p. 403.

Effects of Toad Venom on Eye.—According to Epstein, the poison glands of the toad are well developed masses of tissue, situated one on each side of the head just behind the eyes. These swellings are known as the "parotoid" glands and consist of glandular substance surrounded by a thick layer of muscular tissue, the ducts of the glands opening on to the skin surface. When these masses are gently massaged, a creamy white secretion is extruded, and on gentle pressure being applied, the secretion is shot out with considerable force and can be caught on an inverted watch-glass held over the glands. The venom when applied to or squirted into the eye may produce temporary painful blindness. This is due to the poison causing irritation of the eye and producing marked dilatation of the pupil with its consequent interference with accommodation. The stage of irritation is due chiefly to the presence of a digitalis-like substance in the secretion, and this may later be followed by a stage of anesthesia of the cornea. The dilatation of the pupil is due to the presence of epinephrine in the venom.

Policlinico, Rome

39: 1237-1276 (Aug. 8) 1932. Practical Section

*Epidural Spinal Abscess. A. Chiasserini.—p. 1237.
*Cysticercosis of Muscles: Case. A. Capua.—p. 1240.
Present Status of Antidiphtheritic Vaccination. M. Faberi.—p. 1244.
New Forceps for Extraction of Foreign Bodies, Impermeable to Roentgen Rays, Under Radioscopic Control. L. Gobbi.—p. 1249.

Epidural Spinal Abscess.—Chiasserini reviews the literature of epidural spinal abscess and states that the disease is rare. The symptomatology consists of fever, pain in the upper part of the thoracic portion of the spinal column, rigidity of the spine, and accentuation of the tendinous reflexes of the lower limbs. Sensation is diminished and there is sudden constipation with meteorism and vomiting due to occlusion. Retention of urine and paraplegia follow. The prognosis depends on (1) early intervention, (2) the virulence of the infection and (3) the seat of abscess (suppurations involving the upper segments of the epidural space are more serious). The author cites a case in which the infection was caused by Staphylococcus aureus and was of considerable virulence some time before surgical intervention. The disease lasted twelve days. The seat of suppuration was high, involving the first thoracic vertebra; this was a serious factor, since the medullary alterations due to pressure and intoxication have spread easily to the vital centers. The rapid development of the disease was attributed to the rapid diffusion of the staphylococci in the muscular mass of the back at operation. At operation three laminae were resected and the epidural abscess was emptied.

Cysticercosis of Muscles.—Capua cites a case of cysticercosis of the muscles due to Cysticercus cellulosae. The parasite varies in size from 10 to 15 mm. in length to 5 to 10 mm. in width. The seat of most cysticerci is in the cerebellum and the eye; more rarely in the muscles. When found in the muscles, its axis lies parallel with the muscle fibers. In the author's case there were intense fever and painful crises of rheumatic origin. Diagnosis can be confirmed only by roentgen examination. The cysticerci must be calcified in order to be rendered visible with the rays. Calcification occurs after the death of the parasites. After calcification they appear as oval shadows of regular outline, some opaque and compact, others with foci of calcification irregularly distributed and still others in which there can be seen the opaque outline of the calcified wall as well as an opaque body within the clear space enclosed by the walls. In the author's case roentgen examination revealed the presence of the parasite in the muscles of the pelvis, loins, right thigh, lower limbs and shoulder muscles; all conformed to type in size, shape and calcification.

Semana Médica, Buenos Aires

39: 65-132 (July 14) 1932. Partial Index

*Catheterization of Right Heart: Technic. T. Padilla, P. Cossio and I. Berconsky.—p. 79.
Angioma of Spleen. I. R. Palavecino, R. Rodriguez Villegas and J. M. Palazon.—p. 82.
Anemia in Early Infancy. F. L. Galdi.—p. 114.

Catheterization of Right Heart.—Padilla and his collaborators call attention to the fact that Forssmann, in 1929, succeeded in performing catheterization of the right heart, by way of the venous system, as a harmless method for intracardiac medication, whenever heart failure is impending. The technic and results were described in the *Klinische Wochenschrift* (**8:** 2085 [Nov. 5] 1929; abstr. THE JOURNAL, Jan. 11, 1930, p. 143). Later on, several other authors have succeeded in performing catheterization of the right heart, either for therapeutic purposes (intracardiac medication, withdrawal of blood from the right auricle or from the great vessels of the heart), or for other purposes (among others, for the intracardiac injection of opaque substances for the roentgen study of the heart or its great vessels, and, in this relation, to ascertain the part that the superior vena cava has in the formation of the shadow projected by the great vessels of the heart, in the roentgen picture). In catheterizing the right heart, Padilla and his collaborators prefer venipuncture to venesection. The patient is kept fasting and lying down. The authors used the following technic: The bend of the left elbow was antisepticized (with alcohol and tincture of iodine). The arm was then compressed by a rubber ligature and a puncture was made with a needle (attached to a syringe) at either the basilic or the cephalic veins. Then a number 5 Charrière ureteral catheter, which had been kept in preparation in sterile olive oil (to prevent the probable formation of clots when in contact with the blood) was introduced into the vein through the lumen of the needle to a length of 60 or 65 cm. In cases in which the puncture of the vein could not be made, the authors resorted to exteriorization of the vein, followed by the making of an incision 2 cm. long in it, under local anesthesia, and by the direct introduction of the catheter into the vein through the incision. As soon as the catheter had been introduced into the vein by either of the two procedures (introduction through the lumen of the needle or direct introduction through an incision in the vein), the ligature on the arm was released and the progress of the catheter into the vein was brought about by a slight impulse at its peripheral end. The catheter progressed rapidly through the vein of the arm and then through the axillary and subclavian veins, the left brachiocephalic trunk and the superior vena cava and up to the right auricle, where its distal end was demonstrated by roentgen and radioscopic control. Disturbances did not appear and the electrocardiograms showed no modifications.

Deutsche medizinische Wochenschrift, Leipzig

58: 1275-1312 (Aug. 12) 1932

*Angioneurotic Exudative Diathesis. Assmann.—p. 1275.
Read's Formula and Basal Metabolism. F. Umber.—p. 1279.
Chemical Treatment of Wounds and Constitutional Alteration of Tissue by General Practitioner. F. Schück.—p. 1280.
Psychopathic Conflicts and Defective Development in Stepchildren. M. Eyrich.—p. 1281.
Meibomian Glands: Pathologic Conditions and Their Treatment. A. Eppenstein.—p. 1283.
Irrigation of Large Intestine. Olpp.—p. 1284.
Artificial Elimination of Dyestuffs. L. Strauss.—p. 1286.

Angioneurotic Exudative Diathesis.—Observation of physiologic changes in the vessels in irritation of the nerves of the blood vessels and the clinical observation of patients convinced Assmann that certain relations exist between exudative diathesis and angioneurotic diathesis. Angioneurotic exudative diathesis is a collective term for various pathologic processes in the peripheral vessels which become manifest partly in dilatation and stasis in the capillaries and partly in exudation through the capillary wall into the tissues. They may cause various disorders, such as Quincke's edema, Raynaud's gangrene, hemorrhages in the mucous membranes, intermittent hydrathrosis and epileptiform attacks. The common factor in these different disease manifestations are their appearance in attacks and characteristic changes in the blood, which during the latent period consist of a lymphocytosis and an eosinophilia, whereas during the attack they are represented by a polynuclear aneosinophilic leukocytosis. The underlying cause is a constitutional diathesis and hypersusceptibility, on the basis of which exogenic and endogenic substances lead to the individual attacks.

Klinische Wochenschrift, Berlin

11: 1369-1408 (Aug. 13) 1932. Partial Index

Pathologic Anatomy of Intervertebral Disks in Lumbar Region. G. Schmorl.—p. 1369.
*Location of Blood Pressure Regulating Center in Medulla Oblongata. M. Nordmann and O. Müller.—p. 1371.
*Drug Resistance of Spirochetes in Animal Experiment. A. Feldt.—p. 1378.
Galactose Test in Pernicious Anemia. F. Donath.—p. 1380.
Iso-Electric Point of Genuine and Denatured Human Fibrinogen in Buffered Solution. F. Mainzer.—p. 1382.
Intoxication with Protein Disintegration (Pseudo-Uremia) Resulting from Vomiting. P. Meyer.—p. 1383.
Hormone of Suprarenal Cortex. H. Magistris.—p. 1384.
*Lymphogranuloma Inguinale in Children. M. Luján and W. Rotter.—p. 1387.

Location of Blood Pressure Regulating Center.—Nordmann and Müller relate clinical observations and pathologico-anatomic investigations in a case of anterior poliomyelitis in which the blood pressure gradually increased and in which deaths resulted from respiratory paralysis. On the basis of their observations the authors conclude that there are cases in which increased blood pressure results from functional failure of a center in the central nervous system. They could localize this center definitely in the substantia reticularis grisea in the upper portion of the medulla oblongata. In the future it will therefore be possible to detect or exclude the rôle of the central nervous system in cases of hypertension by careful anatomic examination of the substantia reticularis grisea.

Drug Resistance of Spirochetes.—In mice experiments Feldt made a strain of Spirochaeta obermeieri resistant to arsphenamine, and he observed that the resistance was preceded by a stage in which the spirochetes were hypersensitive to arsphenamine; that is, after the first few passages during which arsphenamine was administered, smaller doses were sufficient to effect cure than is normally the case. After successive passages through normal mice, the arsphenamine resistance of the spirochetes gradually disappeared again. A strain of Spirochaeta pallida became resistant to twice the therapeutic dose of arsphenamine after ten rabbit passages lasting fourteen months. In the conclusion the author points out that the increasing therapeutic refractoriness of human spirochetoses is probably partly caused by a resistance of the spirochetes to chemotherapeutic substances, which develops as the result of several decades of chemotherapy.

Lymphogranuloma Inguinale in Children.—Luján and Rotter observed lymphogranuloma inguinale in two girls, aged 6 and 7, respectively. As in gonorrhea in small girls, the infection took place through uncleanliness. This observation makes it appear probable that in adult women a primary genital infection is likewise possible without sexual intercourse.

Medizinische Klinik, Berlin

28: 1123-1156 (Aug. 12) 1932

Results of Recent Investigations on Absorption, Distribution and Elimination of Lead. F. Weyrauch.—p. 1123.
Treatment of Hypophyseal Cerebral Emaciation with Hormone of Anterior Lobe of Hypophysis. H. Zondek and Gertrud Koehler.—p. 1125.
*Rectal Digitalis Therapy. W. Nonnenbruch and K. Gotsch.—p. 1127.
Primary Pulmonary Sarcoma and Metastatic Mediastinal Sarcoma. G. Herrnheiser.—p. 1128.
Megabulbus and Megaduodenum in Severe Disorders of Stomach. K. Gütig.—p. 1131.
*Agranulocytosis Following Treatment with Neoarsphenamine. Ilse Hellich.—p. 1133.
Reid Hunt's Reaction in Persons with Thyroses, with Disturbances of the Sympathetic Nervous System or with Ulcer. F. Berner.—p. 1135.
Orchitis as Complication of Influenza. K. Frehse.—p. 1135.
Perforation of Peptic Ulcer of Stomach into Left Pleural Cavity. H. Schwarz.—p. 1136.
Cure of Large Prolapse of Rectum Without Operation. P. Bonheim.—p. 1137.
*Roentgen Irradiation of Spur of Calcaneum. Lilly Pokorny.—p. 1138.
Changes in Conception of Biologic Action of Bromine. H. Januschke.—p. 1139.
*Treatment of Erysipelas with Intravenous Injection of Acriflavine Hydrochloride. A. Levison.—p. 1142.

Rectal Digitalis Therapy.—Nonnenbruch and Gotsch state that since rectal digitalis therapy was introduced by Eichhorst it has steadily gained in importance. They show that over oral administration it has the advantage of a more rapid action and that nausea is much rarer in rectal than in oral application, they having observed it in only one case of rectal therapy. Local irritation in the rectum from prolonged administration of digitalis suppositories was likewise comparatively rare. Because of these advantages the authors have resorted to rectal administration more and more, especially in cases in which stasis also existed in the greater circulation, particularly in the portal system, such as in decompensated mitral defects and in lesions of the myocardium. They consider the rectal administration never of less and usually of greater value than oral therapy, especially when rapid action is essential and when gastric disturbances are to be avoided. To illustrate their statements and to encourage wider use of rectal digitalis therapy they give a number of clinical histories, and they are convinced that rectal digitalis therapy can replace to a large extent also subcutaneous and intravenous administration.

Agranulocytosis Following Treatment with Neoarsphenamine.—Hellich states that at the clinic in Rostock three cases of typical lethal agranulocytosis have been observed following neoarsphenamine treatment of syphilitic patients within the last two years. She gives the clinical history of one patient in detail and expresses the opinion that arsphenamine is the essential cause of agranulocytosis, but that syphilis, probably by injuring the reticulo-endothelial system, is also a factor. She also reports two cases of agranulocytosis after neoarsphenamine treatment, which ended in cure. She states that whenever a patient is treated with neoarsphenamine the leukopoietic system should be watched for abnormal reactions.

Roentgen Irradiation of Spur of Calcaneum.—In two patients with painful spur of the calcaneum in whom all conservative measures had failed and in whom a surgical intervention was inadvisable at the time, Pokorny resorted to roentgen therapy and obtained favorable results. The technic was as follows: Through a filter of 0.5 mm. of copper and 1 mm. of aluminum, from 1½ to 2 Holzknecht units were applied three times each medially and laterally at intervals of from three to five days. After discussing the various causes of painful spur of the calcaneum, the author points out that in the two patients who were treated with roentgen rays it was caused by trauma and by arteriosclerosis. She further states that roentgen treatment does not aim to influence the spur directly, but rather the inflammatory process in its surroundings. She does not feel justified to make a definite evaluation of the roentgen therapy but she considers it advisable in relapse after surgical treatment of the spur and also when in the period of extreme painfulness operative treatment is impossible.

Treatment of Erysipelas with Acriflavine Hydrochloride Intravenously.—Levison resorted to the intravenous injection of a solution of acriflavine hydrochloride in erysipelas. He gives the clinical data in four cases in which he found it effective. He thinks that further trials are justified. He considers from 5 to 10 cc. of a 0.5 per cent solution of acriflavine hydrochloride, administered on two or three successive days, as suitable, but thinks that a higher concentration (2 per cent) will have no untoward effects. He advises that care should be taken to avoid paravenous infiltrates.

Monatsschrift f. Geburtshülfe u. Gynäkologie, Berlin

92: 1-160 (Aug.) 1932

Genesis, Clinical Aspects and Therapy of Endometriosis. L. Seitz.—p. 1.
*Treatment of Eclampsia. G. von Bud.—p. 11.
Kristeller's Method. W. Flessa.—p. 25.
Hydatid Mole in Woman Aged 51. H. Baumgart.—p. 34.
*Fate of Children Delivered by Cesarean Section. W. Bromberger.—p. 39.
Combination of Tuberculosis and Tumors in Female Genital Apparatus. H. Kückens.—p. 58.
Acute Focal Infection, Especially Dental Infection in Obstetrics. S. Itzkin.—p. 68.
Hormonal Conditions in Teratoma of Sacrum. E. Fels.—p. 87.
Prospects and Limitations of Early Diagnosis of Cancer of Uterus. Maria Baumert.—p. 90.
Mud Baths Combined with Parenteral Sulphonated Bitumen Treatment in Gynecologic Disturbances. W. I. Sdrawomyslow.—p. 99.

Treatment of Eclampsia.—Von Bud emphasizes that not all forms of eclampsia can be treated in the same manner but that the treatment has to be adapted according to the time at which the eclampsia develops. In the form that develops during pregnancy, especially during the period of dilatation, which has a high rate of mortality, an active therapy, particularly an early cesarean section, gives favorable results. In cases in which the indications for early cesarean section are absent, early delivery can perhaps be effected by other methods. The high forceps should be employed only under favorable conditions. If the head of the fetus cannot be pulled through easily, perforation should be done even if the fetus is still alive. In eclampsia that develops at the end of the period of dilatation, an expectant treatment is justified or the Stroganov-Zweifel principle may be followed, but if the condition becomes more grave, active therapy should be instituted; that is, when the indications are present cesarean section should be done, and in some instances even high forceps may be resorted to, or medium or low forceps may be employed; when the membranes are intact, version with the foot and (when the fetus is dead) perforation is recommended. In eclampsia that occurs during the period of expulsion, an early and accelerated but still a careful delivery is advisable. In puerperal eclampsia conservative therapy is best, except in the rare instances in which renal decapsulation is resorted to. In the conclusion the author stresses the great importance of prophylaxis; he believes that during the period of gestation a careful supervision is absolutely necessary for the purpose of prevention.

Fate of Children Delivered by Cesarean Section.—Bromberger's report is based on observations made in the course of five years on 105 viable infants delivered by cesarean section. The mortality rate during the first year was 7.6 per cent and of the early fatalities only one case can really be ascribed to the cesarean section, more especially to the cervical section. But in this case, just as in two other cases, the trauma to

which the early death can be traced was already present at the beginning of the cesarean operation and was caused by the obstacle to delivery that necessitated the operation. The morbidity of the infants delivered by a cesarean section is not increased, and their development as regards height, weight, dentition and the ability to walk and to speak is entirely normal. Thus the cesarean operation does not involve a late impairment of the child, except in some cases of cervical section in which the use of instruments for the extraction of the infant through the narrow opening may cause a cranial trauma.

Münchener medizinische Wochenschrift, Munich

79: 1305-1344 (Aug. 12) 1932. Partial Index

Experimental Studies on Chemotherapy of Meningitis. K. Beck, K. Beringer and M. Gundel.—p. 1305.
*Clinical Significance of Cardiac Murmurs in Hypertension. M. Hochrein. —p. 1309.
Light Sensitivity of Erythrocytes of Various Mammals and Human Beings. Meyerstein.—p. 1312
Ray Therapy in Exophthalmic Goiter and in Thyrotoxicoses. R. Sielmann.—p. 1314.
Intravenous Narcosis. H. Wiesbader.—p. 1317.
Spider Bites. J. Trumpp.—p. 1318.
Psychotherapy in General Practice. W. Leschmann.—p. 1319.

Significance of Cardiac Murmurs in Hypertension.—Clinical observations made in 148 cases of hypertension revealed to Hochrein that cardiac murmurs were present in 52 per cent of the patients. He found that careful study of the murmurs frequently gives important pointers for the prognosis and treatment of the disturbance. The pathogenic mechanism of the frequently observable prediastolic murmur at the base is discussed in detail. This symptom is an early sign of insufficiency and is important for the estimation of the general circulatory condition and of the success of the treatment. Mitral valve murmurs are not, as was formerly supposed, only accidental murmurs but in about 20 per cent of the author's patients with hypertension they were indicative of an organic impairment of the mitral valve. The author also calls attention to the frequent concurrence of hypertension with mitral defects, particularly with mitral stenosis. This is a special type of hypertension, which is characterized by the following signs: murmur at the mitral valve, reduced vital capacity, and peculiar changes in the electrocardiogram. In intensive cardiac therapy, which should not be neglected even if signs of decompensation are absent, the pressure decreases rapidly to normal values. The pathogenic mechanism of this hypertension is still unclear, but it is probable that reflex processes are involved. The early recognition of the syndrome is important since by treatment with strophanthin and digitalis the prognostically unfavorable secondary stage of hypertension can be prevented or at least retarded.

Zeitschrift für klinische Medizin, Berlin

121: 1-230 (July 5) 1932

Multiple Myeloma: Peculiarities of Composition of Blood (Auto-Inhibition, Coagulation and Hyperproteinemia). R. Freund and A. Magnus-Levy.—p. 1.
Aspects of Atrioventricular Conduction in Atrial Flutter. C. K. Friedberg and C. J. Rothberger.—p. 14.
*Clinical Diagnosis of Aneurysm of Membranous Portion of Atrial Septum. A. Posselt.—p. 50.
Experimental Studies on Entrance of Tissue Fluid into Vascular System Under Physiologic Conditions and After Physical Modification of Vessels. H. Elias and J. Goldstein.—p. 78.
Studies on Types of Stasis: Entrance of Tissue Fluids into Vascular System in Patients with Cardiac Defects. H. Elias and J. Goldstein. —p. 88.
*Changes in Numbers of Blood Platelets in Acute Diffuse Glomerular Nephritis and Its Significance for Pathogenesis. F. Doenecke.—p. 121.
Significance of Increased Capacity of Colon and Its Relation to Constipation and to Megacolon. G. Knittel.—p. 145.
Gerson-Herrmannsdorfer-Sauerbruch's Diet and Its Influence on Metabolism. M. Tesdal.—p. 184.
Use of Black Radish in Internal Medicine, Especially in Diseases of Hepatobiliary Tract. R. Schrader.—p. 194.
Symptomatology in Poisoning with Arsine. F. Bertram and F. Fretwurst.—p. 212.

Diagnosis of Aneurysm of Membranous Portion of Atrial Septum.—Following a description of the clinical history of a girl, aged 16, with a congenital cardiac defect, Posselt discusses the three main symptoms: paroxysmal cyanosis, gurgling systolic murmur, and peculiar conduction disturbances. He reaches the conclusion that there are only three possible explanations for the symptoms: (1) certain formations in the right atrium, such as neoplasms, varicosities or a ball thrombus; (2) the presence of a free echinococcus cyst in the right atrium, and (3) an aneurysm of the membranous septum protruding into the right atrium. He then mentions factors that speak against the conditions mentioned under 1 and 2 and arrives at the following clinical diagnosis: congenital enlargement of the membranous portion of the atrial septum, which, as the result of unequal pressure, led to aneurysmatic protrusion into the right atrium and thus caused cyanotic attacks and peculiar conduction disturbances (Adams-Stokes). The author's object in reporting this case was to show that under certain conditions even intracardiac processes can be diagnosed clinically.

Blood Platelets in Acute Diffuse Glomerular Nephritis.—Doenecke observed that during the early stage of acute diffuse glomerular nephritis a decrease in the blood platelets exists. As improvement becomes noticeable, particularly as the blood pressure decreases, the blood platelets increase again above the normal level. During the time of the increase in the platelets there is a predominance of staff cells, tailed forms and giant forms (hyperactivity of giant cells of the myeloid system). The reduction in the number of blood platelets in the early stage of acute, diffuse glomerular nephritis cannot be the result of the changing dilution or inspissation of the blood, because the fluctuations in the number of erythrocytes do not go parallel but frequently take a directly opposite course. The sudden increase that becomes noticeable during convalescence is due to the emigration of rapidly formed new elements from the thrombocytopoietic system. The author does not think that there is a causal connection between the blood pressure increase that is pathognomonic for glomerular nephritis and the reduction in the blood platelets, for he points out that there are a number of diseases in which the blood platelets are reduced but in which there is no increase in blood pressure. The decrease in blood platelets in acute diffuse nephritis, just as in nearly all infectious diseases and in anaphylactic shock, is probably caused by the presence of a toxin in the blood. From the similarity of the behavior of the platelets in acute diffuse glomerular nephritis and in anaphylactic shock, the author discusses the "anaphylactic nature" of nephritis.

Zentralblatt für Chirurgie, Leipzig

59: 1793-1840 (July 23) 1932

Anesthesia in Minor Surgery. R. Thiel.—p. 1794.
*Spinal Anesthesia by Means of Nupercaine. Amza-Jianu, C. Enescu and T. Firică.—p. 1797.
Improved Surgical Chisel. O. Wiedhopf.—p. 1800.
Traumatic Incomplete Subserous Rupture of Bladder. F. Neugebauer. —p. 1801.
Theory and Practice of Light Anesthesia Produced by Ethyl Chloride. E. Rotthaus.—p. 1802.
Morphine Injection as Aid in Diagnosis of Acute Abdominal Disorders. M. Siebner.—p. 1807.
Localization and Treatment of Pain in Shoulder and of Pain in Knee. A. Müller.—p. 1810.
*Gangrene of Toes and Local Anesthesia. E. Stark.—p. 1811.

Spinal Anesthesia by Means of Nupercaine.—Amza-Jianu and his associates summarize their observations in 120 cases in which they induced spinal anesthesia by means of nupercaine. A quantity of from 4 to 5 mg. was found to be sufficient for a complete anesthesia, and in extremely weak patients or in cases of poisoning only 2 or 3 mg. was administered. As a rule, prepared ampules, 1:1,000, were employed. The nupercaine was administered not only into the lumbar region for operations in which a complete immobilization of the abdomen and long duration of the anesthesia was necessary but also into the cervical portion of the spine to produce anesthesia, for instance, in an intervention for carcinoma of the lip, in surgical reduction of an old cubital luxation, in thyroidectomy or in mastoiditis. Introduction of the substance into the cervical region is done only in young persons whose general condition is good. A dose of 2 mg. is sufficient for administration in this region and precludes all danger. In cases in which the blood pressure decreases considerably, ephedrine is helpful.

Gangrene of Toes and Local Anesthesia.—The reading of a report on gangrene of the toes following administration of a local anesthetic induced Stark to describe his method of prevention. He states that although among his patients he never observed this complication, he nevertheless feared it and

therefore took a prophylactic measure. He considers the gangrene not so much the result of the particular anesthetic but thinks it due to the tenseness of the tissue; he therefore follows the intervention by a vigorous massage of the toes or fingers until the tenseness has disappeared. This massage is painless, for as soon as it becomes painful the object of the massage is attained.

59: 1969-2016 (Aug. 13) 1932. Partial Index

Use of Colloidal Contrast Mediums in Retrograde Pyelography. H. Puhl. —p. 1970.
*Differential Diagnosis of Femoral Hernia and of Aneurysmal Varix. F. Kazda.—p. 1977.
Treatment of Perforative Appendicitis, Particularly Management of Abdominal Wall. E. Moen.—p. 1980.
Severe Tetany in Intestinal Occlusion Caused by Meckel's Diverticulum. N. Onaca and E. Safta.—p. 1981.

Differential Diagnosis of Femoral Hernia. — Kazda shows that the differentiating symptoms between femoral hernia and aneurysmal varix of the fossa ovalis are not always sufficient and pathognomonic. As a sign that in questionable cases indicates an aneurysmal varix he considers a fremitus that is detectable by the palpating finger when the patient contracts the abdominal muscles intermittently.

Sovetskaya Vrachebnaya Gazeta, Leningrad

June 15, 1932, number 11, pp. 641-704

Pathogenesis and Etiology of Malignant Tumors. N. N. Petrov.—p. 643.
*Calcium Chlorate in Treatment of Professional Lead Poisoning. B. B. Koyranskiy.—p. 647.
Abdominal Section Through Inguinal Canal as Surgical Intervention for Extra-Abdominal Shortening of Round Ligaments, Herniotomy and Tubal Sterilization. N. Kakyshkin.—p. 652.
*Gastric Dyspepsia and Gastrotonotherapy by Means of Gaseous Insufflations: Gaultier's Gastrotonometer in Diagnosis and Treatment. G. Z. Rutenberg.—p. 655.
Uncompleted Course of Treatment for Syphilis Followed by Increased Disturbance of Cerebrospinal Fluid and Nervous System. A. K. Yakubson.—p. 661.
Diagnosis and Specific Therapy for Turpentine and Other Professional Dermatitis. I. M. Shcherbakov.—p. 664.
In Favor of Scheppelmann's Symptom for Differential Diagnosis Between Pleuritis and Intravertebral Neuralgia. Ya. S. Khentov.—p. 669.
Floating Sanatoriums for Treatment of Various Diseases. N. V. Sletov. —p. 670.
Social-Cultural Progress in U. S. S. R. (C'cn.). B. Ya. Smulevich.—p. 673.
Public Health Aims Toward Advanced and Prophylactic Medicine. M. I. Sternin.—p. 679.
Higher Level for Public Health Education. D. Efimov.—p. 682.
Psychohygiene Included in System of Public Health Education of Second Five Year Plan. S. M. Shershever.—p. 684.
Advantage of Microchemistry in Urinalysis. A. G. Bosin.—p. 687.
Some Frequent Errors in Ambulatory Surgical Practice. A. V. Gregori. —p. 690.
Causes for Trauma of Male Genitalia. A. B. Gillerson.—p. 695.
Syphilis Verrucosa Cutis Sometimes Mistaken for Tuberculosis Verrucosa Cutis. V. I. Kazakova and A. G. Zarinova.—p. 698.

Calcium Chlorate in Treatment of Lead Poisoning.—Koyranskiy agrees with American workers that there is a close relationship between the calcium balance of the body and the lead excreted in lead poisoning, that the deposition of lead is mainly in the bone, and that mobilization of calcium from bone into the general circulation also increases the discharge (due to increased cellular permeability) of lead deposited there. The author chose as indicator for lead intoxication the demonstration that the power of the extensors of the right hand became weaker in relation to the power of the extensors of the left hand. One of his groups for study included thirty-nine men, fourteen of whom were working with lead dyes, and twenty-five in an accumulator plant. A 10 per cent solution of calcium chlorate was administered internally at a dosage of 1 Gm. a day for a period of one month. Three examinations were made with the extensiograph every ten days. Each determination was repeated three times at intervals of five minutes and the recorded reading was the average of all three. In thirty-four, or 87 per cent, of the men this treatment was followed by an improvement in the power of the extensors of either one or both arms, and the influence was not limited to the extensors but to the body condition generally. The author concludes that calcium may be administered in large amounts to persons in contact with lead products and that this may be of both therapeutic and prophylactic value.

Gastrotonometry in Diagnosis of Gastric Dyspepsia.—Rutenberg discusses the various theories in the etiology of gastric dyspepsia. Believing that gastric dyspepsia is really gastric dystonia, the author describes the Gaultier gastrotonometer and adds his own modification. Both consist of insufflation through a stomach sound of various gases (air or oxygen in the treatment of atonia or hypotonia and carbon dioxide in the treatment of hypertonia). In eight personal observations the readings made in the gastrotonometric examination agreed with the roentgen signs but this was not constant. The author concludes that his studies do not show any special relationship between tonus and gastric secretion. As the tonus improved the dyspepsia gradually disappeared, whereas the acidity was unchanged and often even increased. The first series consisting of from two to three insufflations was given for diagnostic purposes; for therapeutic purposes from ten to twelve series were given at intervals of from two to five days, each series consisting of from four to eight insufflations. Results were attained earliest in functional disturbances; good results were also noted in splanchnoptosis and dystonia complicated with catarrh.

Hospitalstidende, Copenhagen

75: 873-902 (June 30) 1932

*Jaundice: VI. Etiology of Acute Hepatitis: Clinical Aspects. T. Geill. —p. 877.

75: 903-934 (July 7) 1932

Chlorine Content of Tissues in Rats with High Intestinal Obstruction. E. Schnohr.—p. 929.
*Jaundice: VI. Etiology of Acute Hepatitis. (C'cn.) T. Geill.—p. 921.

75: 935-946 (July 14) 1932

Influence of Splenectomy on Resistance to Cancer. A. Wagner.—p. 935.

Etiology of Acute Hepatitis.—Geill's material consisted of eighty-one cases of acute hepatitis. In syphilitic persons the Wassermann reaction seemed to be somewhat affected by the icteric condition; in nonsyphilitic persons the reaction was not affected. The results of investigations on the relation of acute hepatitis to the typhoid-paratyphoid group militate against the etiologic significance of typhoid and paratyphoid in acute hepatitis and thus indirectly support the theory of a special infectious disease with unknown virus as the cause of acute hepatitis. In no case could errors in diet be definitely shown as the cause of the disorder, nor did preceding dyspeptic or rheumatic disturbances seem to play a part. In twenty-one patients the epidemic spread of the disease could be established, and some of the isolated cases appeared to be sporadic forms of epidemic hepatitis. In ten cases herpes of the lips was noted, in two, marked erythema of the face. In some cases itching preceded the jaundice; in most cases it appeared simultaneously with the jaundice or a little later. The author reports two cases of seemingly benign cirrhosis of the liver following acute hepatitis.

Upsala Läkareförenings Förhandlingar, Uppsala

37: 311-456 (June 20) 1932

Pages from History of Roentgen Diagnosis. H. Laurell.—p. 311.
Occurrence of Ergosterol and Vitamin D in Reindeer Moss. G. Blix and H. Rydin.—p. 333.
*Chlorate Poisoning. W. Bosæus.—p. 341.
Methods of Investigation for Determination of Factory Dust in Air. C. Naeslund.—p. 397.
Capillary Resistance and Wheal Tests in Scarlet Fever. A. Myrgård. —p. 417.
Wheal Time and Capillary Resistance in Measles. G. Hellsing.—p. 431.
Metal Foil and Metal Fabrics as Secondary Screens. H. Laurell.—p. 439.

Chlorate Poisoning.—Bosæus cites the cases of chlorate poisoning reported since the publication by Kayser in 1908 of the 120 cases then known, and describes three additional cases, with complete detail of the results of microscopic examination in two. Two cases represent poisoning with sodium chlorate, the third, like those in the literature, with potassium chlorate. The pathologic-anatomic changes were chiefly of the same kind as those generally seen in chlorate poisoning and other disorders with pronounced destruction of the blood. Further, the microscopic examination revealed partly fat embolism, partly extensive infiltration of fatty substances in different tissues and organs; the fat embolism is assumed to have originated on the basis of lipemia. In one case there was in the liver abundant thrombus formation, consisting of a mixture of drops of fat and blood débris.